CLAIMS

WE CLAIM

1. A method comprising reacting

a) at least one diacidic monomer, comprising about 1 to 100 mole % of at least one light-absorbing monomer having a light absorption maximum between about 300 nm and about 1200 nm and 99-0 mole % of a non-light absorbing monomer which does not absorb significant light at wavelengths above 300 nm or has a light absorption maximum below 300 nm, with

b) an organic compound having the formula

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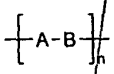
$$X\text{-}B\text{-}X_1$$

wherein B is a divalent organic radical selected from the group consisting of C_2-C_{12} alkylene, C_3-C_8 cycloalkylene, C_1-C_4 alkylene- C_3- C_8-cycloalkylene- C_1-C_4 alkylene, C_1-C_4 alkylene-arylene- C_1-C_4 alkylene, C_2- C_4-alkylene-L-arylene-L- C_2-C_4 alkylene and C_2-C_4 alkylene-(L- C_2-C_4 alkylene)$_{1-4}$, wherein L is a linking group selected from the group consisting of -O-, -S-, -SO_2-, -NH-, -N(C_1-C_6 alkyl)-, -N(aryl)-, -N(SO_2 C_1-C_6 alkyl)-, -N(SO_2aryl)-, -SO_2N(C_1-C_6 alkyl)- and combinations thereof; X and X_1 are reactive groups and are independently selected from the group consisting of bromine, iodine and R-SO_2O; wherein R is selected from the group consisting of C_1-C_6 alkyl; C_1-C_6 alkyl substituted with chlorine, fluorine, C_1-C_6 alkoxy, aryl, aryloxy, arylthio or C_3-C_8 cycloalkyl; C_3-C_8 cycloalkyl or aryl,

wherein said reaction is carried out in a solvent in the presence of a base to form a light absorbing polymeric composition having the formula



wherein B is as defined above, n is at least 2 and A comprises the residue of said diacidic monomer.

2. The process of claim 1 where said light-absorbing monomers have the formula

H-Y-H

wherein H represents an acidic hydrogen atom; Y is a divalent light-absorbing moiety selected from the group consisting of chromophoric classes of azo, disazo, triazo, bis-azo, methine, arylidene, polymethine, azo-methine, azamethine, anthraquinone, anthrapyridone (3H-dibenz[f,ij]isoquinoline-2,7-dione, nitroarylamines anthrapyridine (7H-dibenz[f,ij]isoquinoline-7-one, phthaloylphenothiazine (14H-naphth[2,3-a]phenothiazine-8,13-dione, benzanthrone (7H(de)anthracene-7-one), anthrapyrimidine (7H-benzo[e]perimidine-7-one), anthrapyrazole, anthraisothiazole, triphenodioxazine, thiaxanthene-9-one, fluorindine (5,12-dihydroquinoxaline [2,3-b]phenazine, quinophthalone, phthalocyanine, metal phthalocyanine, naphthalocyanine, metal naphthalocyanine, nickel dithiolenes, squarylium compounds, croconium compounds, coumarin (2H-1-benzopyran-2-one), coumarin imine (2H-1-benzopyran-2-imine), perinone, benzodifuran, phthaloylacridone, phthaloylphenoxazine (14H-naphtho[2,3-a]phenoxazine-8,13-done, phthaloylacridone (13H-naphtho[2,3-c] acridine-5,8,14-trione), anthraquinonethioxanthane (8H-naphtho[2,3-c]thioxanthene-5,8,13-trione, anthrapyridazone, pyrrolo[3,4-c]pyrrole, indigo, thioindigo, quinoline, xanthene, acridine, azine, cyanine, oxazine, 1,4 and 1,5-naphthoquinones, 2,5-

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diarylaminoterephthalic acids and esters, pyromellitic acid dimide, naphthalene-1,4,5,8-tetracarboxylic acid diimide, 3,4,9,10-perylenetetracarboxylic acid diimide, 3-aryl-2,5-dioxypyrroline, 3-aryl-5-dicyanomethylene-2-oxopyrroline, arylisoindoline, hydroxybenzophenone, benoztriazole, naphthotriazole, diminoisoindoline, naphthopyran (3H-naphtho[2,1-6]pyran-3-one and 3-imine, phthalimides, 2-arylbenzazoles, carbostyryls, 1,2-diarylethenes, 2,5-diarylthiophenes, 2,5-diaryl-1,3,4-oxadiazoles, triazines, 2,5-diarylfurans, 2,5-diaryl-1,3,4-thiadiazoles, thiophenes, 1,3-diphenyl-2-pyrazolines, 2-arylbenzofurans, 2,6-diphenylbenzofurans, quinolines, quinoxalines, 3,4-diarylfuanones, distyrylarenes, benzanthrones, polyarenes and naphthalimides.

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3. The method of claim 2 wherein the hydrogen atoms of said formula H-Y-H are independently bonded to an oxygen, sulfur, or nitrogen atom which is a part of the light absorbing moiety Y and which in combination provides two acidic functional groups.

4. The method of claim 3 wherein said acidic functional groups have pKa values of from about 1.5 to about 12.

5. The method of claim 3 wherein said acidic functional groups are independently selected from the group consising of $-CO_2H$, -SH, -OH attached to an aromatic ring, -CONHCO-, $-SO_2$-NH-CO-, $-SO_2$-NH-SO_2-, 1(H)-1,2,4-triazol-3-yl-, imidazolyl, benzimidazolyl, pyrazolyl, $-SO_2H$ attached to aromatic ring, $-NHSO_2R_5$ and-SO_2NHR_5, wherein R_5 is selected from the group consisting of C_1-C_6 alkyl, C_3-C_8 cycloalkyl, aryl and C_1-C_6 alkyl substituted with at least one group selected from the group consisting of C_1-C_6 alkoxy, aryl, aryloxy, arylthio and C_3-C_8 cycloalkyl.

6. The method of claim 1 wherein said non light-absorbing monomers have the formula

$H\text{-}Y_1\text{-}H$

wherein H represents an acidic hydrogen atom; Y_1 is a divalent moiety selected from the group consisting of $-O_2C-R_1-CO_2-$ and $-O-R_2-O-$ and $-O_2C-R_3-O-$, wherein R_1 is selected from the group consisting of C_2-C_{12} alkylene, 1-4-cyclohexylene, arylene, arylene-O-arylene, arylene-SO_2-arylene, arylene-S-arylene, and C_1-C_4 alkylene-O- C_1-C_4 alkylene; wherein R_2 is selected from the group consisting of arylene, arylene-O-arylene, arylene-S-arylene, arylene-SO_2-arylene, phenylene-phenylene, and phenylene-$C(R_4)_2$-phenylene; wherein R_4 is selected from the group consisting of hydrogen and C_1-C_4 alkyl; wherein R_3 is selected from arylene.

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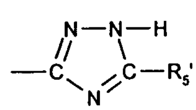
7. The method of claim 1 wherein said polymeric composition is linear.

8. The method of claim 1 wherein said diacidic monomers have pK_a values of about 12 or below.

9. The method of claim 2 wherein H-Y-H includes a moiety selected from the group consisting of carboxy groups attached to an aromatic ring carbon or aliphatic carbon, hydroxy groups attached to an unsubstituted or substituted phenyl or naphthyl radical, -CO-NHCO- groups attached to an aromatic ring to provide an imide and 1(H)-1,2,4-triazol-3-yl group having the formula



wherein R_5' is selected from the group consisting of hydrogen, C_1-C_6 alkyl and aryl.

10. The method of claim 1 where n is between about 2 and about 25.

11. The method of claim 1 wherein n is between about 3 and about 15.

12. The method of claim 1 wherein said base is selected from the group consising of alkali metal carbonates, alkali metal bicarbonates and tertiary amines, aromatic nitrogen bases, bicyclic nitrogen containing bases having non-hindered electron pairs and mixtures thereof.

13. The method of claim 12 wherein said base is selected from the group consisting of triethylamine, tri-n-butylamine, N-methylpiperidine, N,N'-dimethylpiperazine, N-methylmorpholine and N,N,N',N'-tetramethylethylenediamine, pyridines, picolines, quinolines, isoquinolines, N-alkylpyrroles, N-alkylimidazoles, 1,8-diazabicyclo[5,4,0]undec-7-ene (DBU), 1,5-diazabicylco[4,3,0]non-5-ene (DBN) and 1,4-diazadicyclo[2,2,2]octane (DABCO®) and mixtures thereof.

14. The method of claim 1 wherein said solvent is one or more aprotic polar solvents.

15. The method of claim 1 wherein said solvent is selected from the group consisting of N,N-dimethylacetamide, N,N-dimethylformamide, N-methyl-2-pyrrolidone, N-methyl-N-phenyl formamide, dimethylsulfoxide, aliphatic nitriles, sulfolane, hexamethyl phosphoramide, water, alcohols, ketones pyridine and ether-alcohols and mixtures thereof.

16. The method of claim 15 wherein said solvent is selected from the group consisting of N,N-dimethylacetamide, N,N-dimethylformamide, N-methyl-2-pyrrolidone, N-methyl-N-phenyl formamide, dimethylsulfoxide, aliphatic nitriles, sulfolane and hexamethyl phosphoramide and mixtures thereof.

17. The method of claim 1 wherein said reacting is conducted at a temperature between about 75°C and about 125°C.

18. The method of claim 1 wherein said organic compound having the formula

$X\text{-}B\text{-}X_1$

is selected from the group consisting of disulfonate compounds where X and X_1 are both a sulfonate ester of the formula $-OSO_2R$, wherein R is selected from C_1-C_4 alkyl, phenyl or p-methylphenyl and wherein B is selected from C_2-C_6 alkylene, $-CH_2$-1,4-cyclohexylene-CH_2-, $-CH_2CH_2(OCH_2CH_2)_{1-4}$ and $-CH_2CH_2O$-1,4-phenylene-O-CH_2CH_2-.

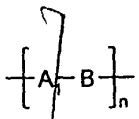
19. The method of claim 18 wherein said B moiety of organic compound of Formula II is selected from the group consisting of $-CH_2CH_2-$, $-CH_2CH(CH_3)CH_2-$, $-CH_2C(CH_3)_2CH_2-$, $-(CH_2)_4-$, $-(CH_2)_6-$, $-CH_2CH_2OCH_2CH_2-$ and $-CH_2$-1,4-cyclohexylene-CH_2-.

20. The method of claim 1 wherein said organic compound having the formula $X\text{-}B\text{-}X_1$ is selected from the group consisting of 1,2-ethandiol, dimethanesulfonate; 1,2-ethanediol bis(4-methylbenzenesulfonate); 1,4 butanediol, dimethane sulfonate; 1,6-hexanediol, dimethanesulfonate; 1,3-propanediol,2,2-dimethyl-, dimethanesulfonate; 1,4-cyclohexanedimethanol, dimethanesulfonate; 1,1,3,3-tetramethylcyclobutanediol, dimethanesulfonate, and ethanol 2,2'-oxybis-dimethanesulfonate.

21. The method of claim 1 wherein A of said light absorbing polymeric composition comprises 100 mole% of said light-absorbing monomer.

22. The method of claim 1 wherein said diacidic light absorbing monomer has a light absorption maximum between about 300 nm and about 1200 nm and is present in said light absorbing polymeric composition in an amount at least about 50% by weight %.

23. A light absorbing composition having the formula



wherein A_1 comprises the residue of at least one diacidic monomer having a light absorption maximum between about 300 nm and about 1200 nm, and wherein B is a divalent organic radical selected from the group consisting of C_2-C_{12} alkylene, C_3-C_8 cycloalkylene, C_1-C_4 alkylene- C_3-C_8-cycloalkylene- C_1-C_4 alkylene, C_1-C_4 alkylene-arylene-C_1-C_4 alkylene, and C_2- C_4-alkylene-L-arylene-L- C_2-C_4 alkylene and C_2-C_4 alkylene-(L- C_2-C_4 alkylene)$_{1-4}$, wherein L is a linking group selected from-O-, -S-, -SO_2-, -NH-, -N(C_1-C_6 alkyl)-, -N(aryl)-, -N(SO_2 C_1-C_6 alkyl)-, -N(SO_2aryl)-, -SO_2N(C_1-C_6 alkyl)- and combinations thereof; wherein n is at least 2.

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24. A composition comprising a thermoplastic polymer blended with at least one light absorbing linear polymeric composition of claim 23.

25. The composition of claim 24 wherein said thermoplastic polymer is selected from the group consisting of polyesters, polyolefins, polyamides, polyimides, polyvinyl chloride, polyurethanes, polycarbonates, cellulose esters, polyacrylates, polyvinylesters, polyester-amides, polystyrene, polyacrylonitrile-butadiene- styrene, polystyrene-acrylonitrile and mixtures and blends thereof.

26. The composition of claim 23 wherein A_1 comprises the residue of at least one diacidic monomer having the structure

H-Y-H

wherein H represents an acidic hydrogen atom and Y is a divalent light-absorbing moiety selected from the chromophoric classes consisting of azo, disazo, triazo, bis-azo, methine, arylidene, polymethine, azo-methine, azamethine, anthraquinone, anthrapyridone (3H-dibenz[f,ij] isoquinoline-2,7-dione, nitroarylamines anthrapyridine

(7H-dibenz[f,ij]isoquinoline-7-one, phthaloylphenothiazine (14H-naphth[2,3-a]phenothiazine-8,13-dione, benzanthrone (7H(de)anthracene-7-one), anthrapyrimidine (7H-benzo[e]perimidine-7-one), anthrapyrazole, anthraisothiazole, triphenodioxazine, thiaxanthene-9-one, fluorindine (5,12-dihydroquinoxaline [2,3-b]phenazine, quinophthalone, phthalocyanine, metal phthalocyanine, naphthalocyanine, metal naphthalocyanine, nickel dithiolenes, squarylium compounds, croconium compounds, coumarin (2H-1-benzopyran-2-one), coumarin imine (2H-1-benzopyran-2-imine), perinone, benzodifuran, phthaloylacridone, phthaloylphenoxazine (14H-naphtho[2,3-a]phenoxazine-8,13-done, phthaloylacridone (13H-naphtho[2,3-c] acridine-5,8,14-trione), anthraquinonethioxanthane (8H-naphtho[2,3-c]thioxanthene-5,8,13-trione, anthrapyridazone, pyrrolo[3,4-c]pyrrole, indigo, thioindigo, quinoline, xanthene, acridine, azine, cyanines, oxazine, 1,4 and 1,5-naphthoquinones, 2,5-diarylaminoterephthalic acids and esters, pyromellitic acid dimide, naphthalene-1,4,5,8-tetracarboxylic acid diimide, 3,4,9,10-perylenetetracarboxylic acid diimide, 3-aryl-2,5-dioxypyrroline, 3-aryl-5-dicyanomethylene-2-oxopyrroline, arylisoindoline, hydroxybenzophenone, benoztriazole, naphthotriazole, diminoisoindoline, naphthopyran (3H-naphtho[2,1-6]pyran-3-one and 3-imine, phthalimides, 2-arylbenzazoles, carbostyryls, 1,2-diarylethenes, 2,5-diarylthiophenes, 2,5-diaryl-1,3,4-oxadiazoles, triazines, 2,5-diarylfurans, 2,5-diaryl-1,3,4-thiadiazoles, thiophenes, 1,3-diphenyl-2-pyrazolines, 2-arylbenzofurans, 2,6-diphenylbenzofurans, quinolines, quinoxalines, 3,4-diarylfuanones, distyrylarenes, benzanthrones, polyarenes and naphthalimides.

27. The light absorbing linear polymeric composition of claim 23 or 26

wherein A_1 further comprises less than about 50% by weight of the total composition of a residue of at least one non-light absorbing monomer having the formula

$$H\text{-}Y_1\text{-}H$$

wherein Y_1 is a divalent moiety, selected from the group consisting of-O_2C-R_1-CO_2- and-O-R_2-O- and-O_2C-R_3-O-, wherein R_1 is selected from the group consisting of C_2-C_{12} alkylene, 1-4-cyclohexylene, arylene, arylene-O-arylene, arylene-SO_2-arylene, arylene-S-arylene, and C_1-C_4 alkylene-O- C_1-C_4 alkylene; wherein R_2 is selected from the group consisting of arylene, arylene-O-arylene, arylene-S-arylene, arylene-SO_2-arylene, phenylene-phenylene, and phenylene-$C(R_4)_2$-phenylene; wherein R_4 is selected from the group consisting of hydrogen and C_1-C_4 alkyl; wherein R_3 is arylene; wherein B is is a divalent organic radical selected from the group consisting of C_2-C_{12} alkylene, C_3-C_8 cycloalkylene, C_1-C_4 alkylene-C_3-C_8-cycloalkylene-C_1-C_4 alkylene, C_1-C_4 alkylene-arylene-C_1-C_4 alkylene, and C_2-C_4-alkylene-L-arylene-L-C_2-C_4 alkylene and C_2-C_4 alkylene-(L-C_2-C_4 alkylene)$_{1-4}$; wherein L is a linking group selected from-O-, -S-, -SO_2-, -NH-, -N(C_1-C_6 alkyl)-, -N(aryl)-, -N(SO_2 C_1-C_6 alkyl)-, -N(SO_2aryl)-, -SO_2N(C_1-C_6 alkyl)- and combinations thereof; wherein n is at least 2.

28. The light absorbing linear polymeric composition of Claim 25 wherein A_1 comprises the residue of at least one diacidic monomer having at least one acidic group other than carboxy and having a light absorption maximum between about 300 nm and about 1200 nm and wherein B is a divalent organic radical selected from C_2-C_{12} alkylene, C_3-C_8 cycloalkylene, C_1-C_4 alkylene- C_3-C_8-cycloalkylene- C_1-C_4 alkylene, C_1-C_4 alkylene-arylene-C_1-C_4 alkylene, and C_2- C_4-alkylene-L-arylene-L- C_2-C_4 alkylene and C_2-C_4 alkylene-(L-C_2-C_4 alkylene)$_{1-4}$, wherein L is a linking group selected from-O-, -S-, -SO_2-, -NH-, -N(C_1-C_6 alkyl)-, -N(aryl-, -N(SO_2 C_1-C_6 alkyl)-,

-(SO_2aryl)-, -$SO_2N(C_1$-C_6 alkyl)- and combinations thereof; wherein n is at least 2.

29. The process of claim 2 wherein said light absorbing monomer comprises two carboxy groups as acidic functional groups.

30. The process of claim 2 wherein said light absorbing monomer comprises two 1(H)-1,2,4-triazol-3-ylthio groups as acidic functional groups.

31. The process of claim 2 wherein said light absorbing monomer comprises one carboxy and one 1(H)-1,2,4-triazol-3-ylthio group as acidic functional groups.

32. The process of claim 2 wherein said light absorbing monomer comprises two hydroxy groups attached to aromatic ring(s).

33. The process of claim 2 wherein said light absorbing monomer comprises one imide group and one carboxy group.

34. The process of claim 2 wherein said light absorbing monomer comprises one imide group and one 1(H)-1,2,4-triazol-3-ylthio group.

35. The composition of claim 25 wherein said light absorbing monomer comprises two carboxy groups as acidic functional groups.

36. The composition of claim 25 wherein said light absorbing monomer comprises two 1(H)-1,2,4-triazol-3-ylthio groups as acidic functional groups.

37. The composition of claim 25 wherein said light absorbing monomer comprises one carboxy and one 1(H)-1,2,4-triazol-3-ylthio group as acidic functional groups.

38. The composition of claim 25 wherein said light absorbing monomer comprises two hydroxy groups attached to aromatic ring(s).

39. The composition of claim 25 wherein said light absorbing monomer comprises one imide group and one carboxy group.

40. The composition of claim 23 wherein said light absorbing monomer comprises one imide group and one 1(H)-1,2,4-triazol-3-ylthio group.

41. The composition of claim 23 wherein said light absorbing monomer comprises a diacidic sulfamoyl ($-SO_2NH_2$) group.

42. The composition of claim 25 wherein said light absorbing monomer comprises two acidic groups independently selected from the group consisting of $-CO_2H$, SH, hydroxy attached to an aromatic ring, -CONHCO-(imide), $-SO_2NHCO-$, $-SO_2NHSO_2-$, 1(H)-1,2,4-triazolyl-3-yl-, imidazolyl, benzimidazolyl, pyrazolyl, $-SO_2H$ attached to an aromatic ring, $-NHSO_2R_5$ and $-SO_2NHR_5$, wherein R_5 is selected from the group consisting of C_1-C_6 alkyl; C_1-C_6 alkyl substituted with at least one group selected from C_1-C_6 alkoxy, aryl, aryloxy, arylthio and C_3-C_8 cycloalkyl; C_3-C_8 cycloalkyl; aryl.

43. The composition of claim 27 wherein said light absorbing monomer comprises two carboxy groups as acidic functional groups.

44. The composition of claim 27 wherein said light absorbing monomer comprises two 1(H)-1,2,4-triazol-3-ylthio groups as acidic functional groups.

45. The composition of claim 27 wherein said light absorbing monomer comprises one carboxy and one 1(H)-1,2,4-triazol-3-ylthio group as acidic functional groups.

46. The composition of claim 27 wherein said light absorbing monomer comprises two hydroxy groups attached to aromatic ring(s).

47. The composition of claim 27 wherein said light absorbing monomer comprises one imide group and one carboxy group.

48. The composition of claim 27 wherein said light absorbing monomer comprises one imide group and one 1(H)-1,2,4-triazol-3-ylthio group.

49. The composition of claim 27 wherein said light absorbing monomer comprises a diacidic sulfamoyl ($-SO_2NH_2$) group.

50. The composition of claim 27 wherein said light absorbing monomer comprises two acidic groups independently selected from $-CO_2H$, SH, hydroxy attached to an aromatic ring, -CONHCO- (imide), $-SO_2NHCO-$, $-SO_2NHSO_2-$, 1(H)-1,2,4-triazolyl-3-yl-, imidazolyl, benzimidazolyl, pyrazolyl, $-SO_2H$ attached to an aromatic ring, $-NHSO_2R_5$ and $-SO_2NHR_5$, wherein R_5 is selected from C_1-C_6 alkyl; C_1-C_6 alkyl substituted with at least one group selected from C_1-C_6 alkoxy, aryl, aryloxy, arylthio and C_3-C_8 cycloalkyl; C_3-C_8 cycloalkyl; aryl.

51. The light absorbing linear polymeric composition of claim 27 wherein said at least one diacidic monomer comprises at least about 50% by weight of the total composition.

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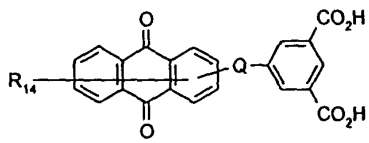
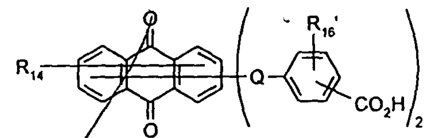
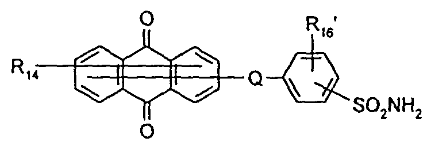
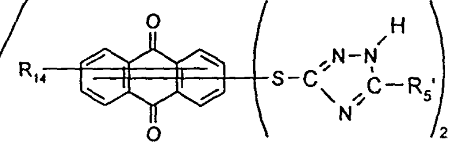
52. The composition of claim 51 wherein the light absorbing portion of A comprises the residue of at least one diacidic light absorbing monomer selected from the group consisting of the anthraquinone and anthrapyridone colorants having the structures:









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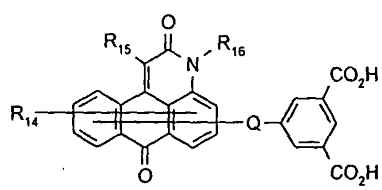
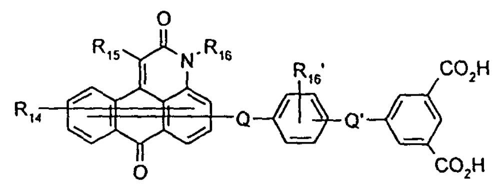
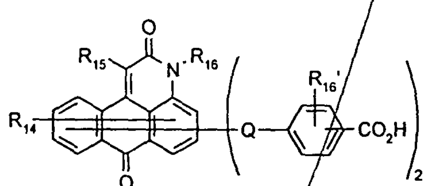
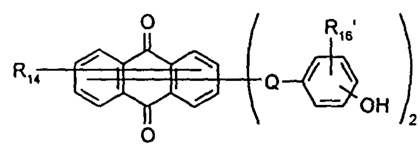
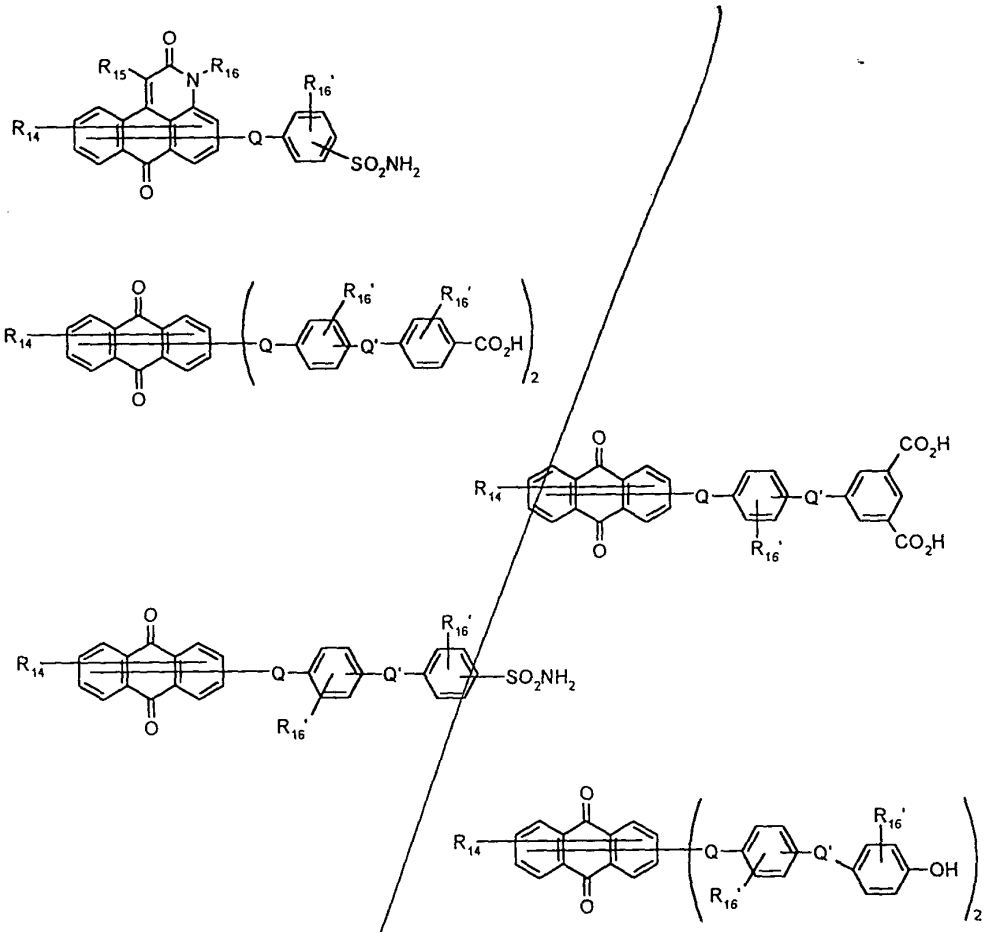




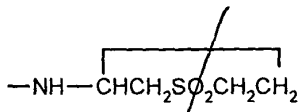






SUB C7

wherein R_{14} is selected from the group consisting of hydrogen and 1-4 groups selected from amino, C_1-C_{10} alkylamino, C_3-C_8 alkenylamino, C_3-C_8 alkynylamino, C_3-C_8 cycloalkylamino, arylamino, halogen, C_1-C_6 alkoxy, C_1-C_6 alkylthio, aryl, aroyl, C_1-C_6 alkanoyl, C_1-C_6 alkanoyloxy, NHCO C_1-C_6 alkyl, NHCOaryl, $NHCO_2$ C_1-C_6 alkyl, $NHSO_2$ C_1-C_6 alkyl, $NHSO_2$ aryl, C_1-C_6 alkoxycarbonyl, aryloxy, arylthio, heteroarylthio, cyano, nitro, trifluoromethyl, thiocyano, SO_2 C_1-C_6 alkyl, SO_2 aryl, $-SO_2NH$ C_1-C_6 alkyl, $-SO_2N(C_1$-C_6 alkyl$)_2$, $-SO_2N(C_1$-C_6 alkyl) aryl, CONH C_1-C_6 alkyl, $CON(C_1$-C_6 alkyl$)_2$, CON(C_1-C_6 alkyl) aryl, C_1-C_6 alkyl, furfurylamino, tetrahydrofurfurylamino, 4-(hydroxymethyl) cyclohexanemethylamino,



or hydroxy; Q and Q' are independently selected from the group consisting of-O-, $-N(COR_{10})-$, $-N(SO_2R_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $-CON(R_{10})-$, $SO_2N(R_{10})-$, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl, or C_1-C_{10} alkyl; R_{15} is selected from the group consisting of hydrogen, cyano, C_1-C_6 alkylamino, C_1-C_6 alkoxy, halogen, arylthio, aryl, heteroaryl, heteroarylthio, C_1-C_6 alkoxycarbonyl, aroyl or arylsulfonyl; R_{16} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl and aryl; R_{16}' is selected from the group consisting of hydrogen, C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy; wherein each C_1-C_6 alkyl group and C_1-C_6 alkyl group which is a portion of another group may contain at least one substituent selected from the group consisting of hydroxy, cyano, chlorine, fluorine, C_1-C_6 alkoxy, C_3-C_8 cycloalkoxy, C_1-C_6 alkylcyclohexyl, hydroxmethyl cyclohexyl, aryl and heteroaryl; with the provision that two acidic groups containing one acidic proton each or one acidic group containing two acidic hydrogens be present in the diacidic compounds.

SUB C1

53. The composition of claim 26 or 27 wherein the light absorbing portion of A comprises the residue of at least one light absorbing monomer selected from the group consisting of azo, disazo, bis-azo and azomethine and having respectively the structures:

Sub B3

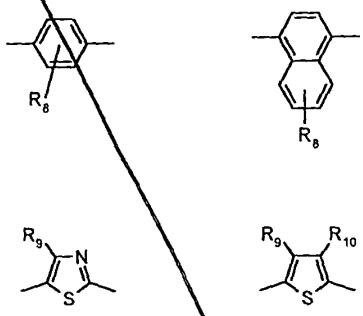
$R_6-N=N-Z$, $R_6-N=N-R_7-N=N-Z$, $R_6-N=N-Y_1-N=N-R_6$ and $D=HC-N=N-Z$

wherein R_6 is the residue of an aromatic or heteroaromatic amine which has been diazotized and coupled with a coupling component H-Z and is derived from an amine

selected from the group consisting of aromatic and heteroaromatic amine classes selected from the group consisting of aniline, 1-aminonaphthalene, 1-aminoanthraquinone, 4-aminoazobenzene, 2-aminothiazole, 2-aminobenzothiazole, 3-amino-2,1-benzisothiazole, 2-aminothieno[2,3-d]thiazole, 5-aminoisothiazole, 5-aminopyrazole, 4-aminopyrazoloisothiazole, 2-amino-1,3,4-thiadiazole, 5-amino-1,2,4-thiadiazole, 5-amino-1,2,3-triazole, 2-amino-1,3,4-triazole, 2(5) aminoimidazole, 3-aminopyridine, 2(3) aminothiophene, 2(3) aminobenzo[b]thiophene, 2-aminothieno[3,2-b]thiophene, 3-aminothieno[2,3-c]isothiazole, 3-amino-7-benz-2,1-isothiazole, 3-aminobenzothienoisothiazole, 3-aminoisothiazole[3,4-d]pyrimidine, 5-amino-1,2,3-triazole, 3(4) aminophthalimide and 5(6) amino-1,2-benzisothiazolon-1,1-dioxide with said aromatic and heteroaromatic ring systems being unsubstituted or substituted with one or more groups selected from C_1-C_{10} alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, carboxy, halogen, C_1-C_6 alkoxycarbonyl, formyl, C_1-C_6 alkanoyl, C_1-C_6 alkanoyloxy, dicyanovinyl, C_3-C_8-cycloalkanoyl, thiocyano, trifluroacetyl, cyano, carbamoyl, -CONH-C_1-C_6 alkyl, CONHaryl, CON(C_1-C_6 alkyl)$_2$, sulfamoyl, SO_2NH C_1-C_6 alkyl, SO_2N(C_1-C_6 alkyl)$_2$, SO_2NHaryl, SO_2NH C_3-C_8 cycloalkyl, CONH C_3-C_8 cycloalkyl, aryl, aroyl, -$NHSO_2$ C_1-C_6 alkyl, -N(C_1-C_6 alkyl)SO_2 C_1-C_6 alkyl, -$NHSO_2$ aryl, NHCO C_1-C_6 alkyl, NHCO C_3-C_8 cycloalkyl, NHCOaryl, $NHCO_2$ C_1-C_6 alkyl, NHCONH C_1-C_6 alkyl, NHCONHaryl, N(C_1-C_6 alkyl)aryl, arylazo, heteroaryl, aryloxy, arylthio, C_3-C_8 cycloalkoxy, heteroarylazo, heteroarylthio, arylsulfonyl, tricyanovinyl, aryloxysulfonyl, C_1-C_6 alkylsulfonyl, trifluoromethyl, fluorosulfonyl, trifluoromethylsulfonyl, thiocyano, hydroxy, nitro or CH=D, wherein D is the residue of an active methylene compound selected from the group consisting of malononitrile, α-cyanoacetic acid esters, malonic acid esters, α-cyanacetic acid amides, α-C_1-C_6

Subject cont.

alkylsulfonylacetonitriles, α-arylsulfonylacetonitriles, α-C_1-C_6 alkanoylacetonitriles, α-aroylacetonitriles, α-heteroarylacetonitriles, bis(heteroaryl)methanes, 1,3-indanediones, 2-furanones, benzo-2-furanones, naphtho-2-furanones, 2-indolones, 3-cyano-1,6-dihydro-4-methyl-2,6-dioxy (2H)-pyridines, benzo (b) thieno-3-ylidene propane dinitrile-5,5-dioxides, 1,3-bis(dicyanomethylene) indanes, barbituric acid, 5-pyrazolones, dimedone, 3-oxo-2,3-dihydro-1-benzothiophene-1,1-dioxides or aryl-$C(CH_3)C=C(CN)_2$; wherein R_7 is a divalent aromatic or heteroaromatic radical selected from the group consisting of 1,4-phenylene, naphthalene-1,4-diyl, thiazol-2,5-diyl and thiophene-2,5-diyl:



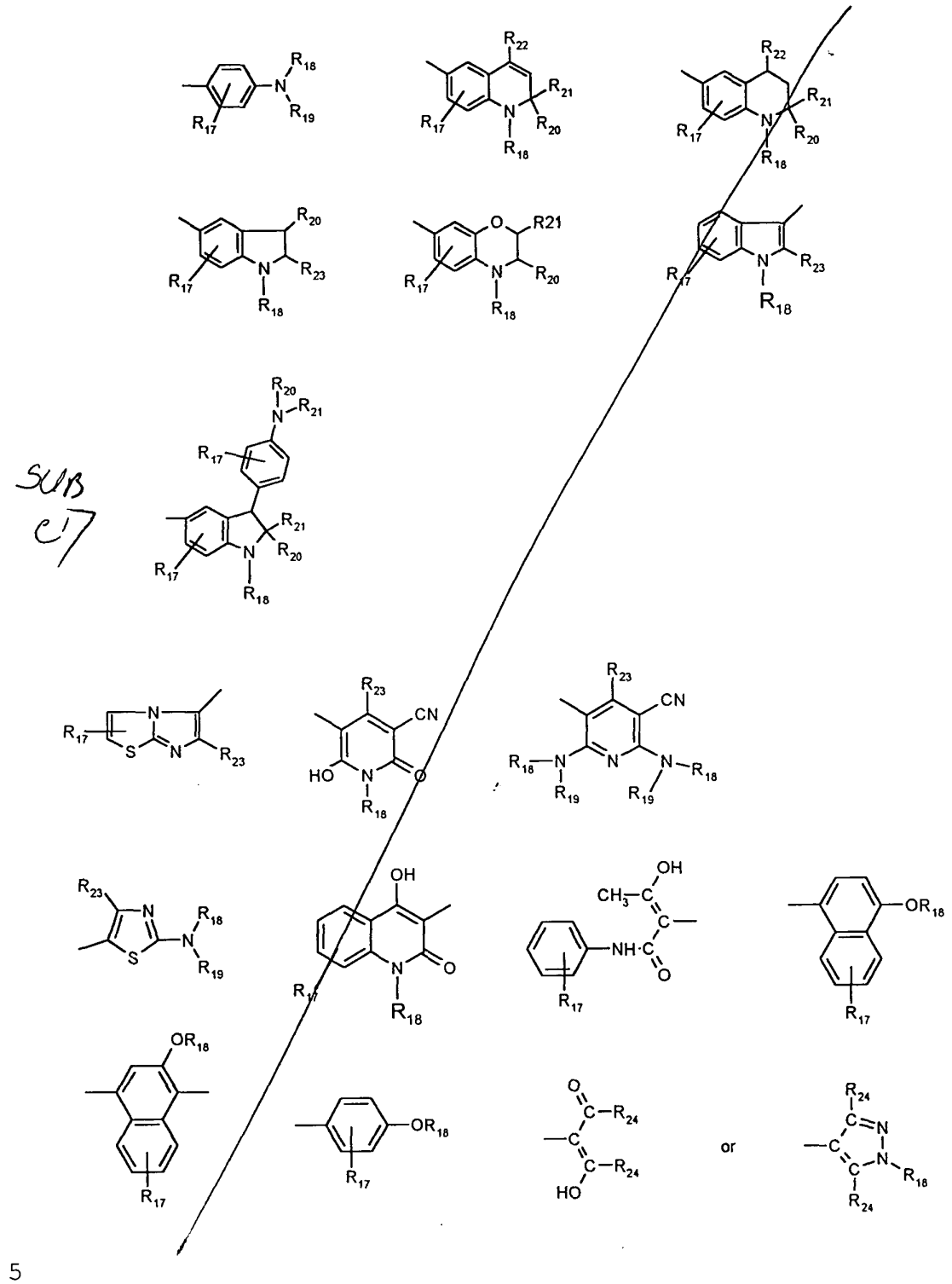
wherein R_8 is selected from the group consisting of hydrogen or 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, cyano, halogen, -NHCO C_1-C_6 alkyl, -$NHCO_2$ C_1-C_6 alkyl, -NHCO aryl, -NHCONH aryl or NHCONH C_1-C_6 alkyl; R_9 is selected from the group consisting of hydrogen, C_1-C_6 alkyl, halogen, aryl, heteroaryl; R_{10} is selected from the group consisting of hydrogen, C_1-C_6 alkoxycarbonyl, cyano, carbamoyl, aryl, arylsulfonyl, aroyl, -CONH C_1-C_6 alkyl, or C_1-C_6 alkylsulfonyl; wherein Z is the residue of a coupling compound selected from the group consisting of electron rich compound classes of anilines, 1-aminonaphthalenes, 1,2-dihydroquinolines, 1,2,3,4-tetrahydroquinolines, benzomorpholines (3,4-dihydro-2H-1,4-benzoxazine),

Sub B3 cont.

pyrazolones, pyrazoles, 3-cyano-6-hydroxy-2-pyridones, 2,3-dihydroindoles, indoles, 4-hydroxycoumarins, 4-hydroxy-2-quinolones, imidazo[2,1-b]thiazoles, julolidines (2,3,6,7-tetrahydro-1H,5H-benzo[ij]quinolizines), 1-oxajulolidines, 1,2,5,6-tetrahydro-4H-pyrrolo[3,2,1-ij]quinolines, 2,6-diamino-3 cyanopyridines, 2-aminothiazoles, 2-aminothiophenes, 5,5-dimethyl-1,3-cyclohexanedione (dimedone), phenols, naphthols, 2,4-pentanediones or acetoacetarylides; wherein Y_1 is the residue of a bis coupling component selected from the group consisting of anilines, 1,2-dihydroquinolines, 1,2,3,4-tetrahydroquinolines, benzomorpholines (3,4-dihydro- 2H-1,4-benzoxazines), 3-cyano-6-hydroxy-2-pyridones, 2,6-diaminopyridines, 2,3-dihydroindoles, naphthylamines, 2-aminothiazoles, or a combination of these; with the provision that two acidic functional groups containing one acidic hydrogen each or a functional group containing two acidic hydrogen are present in the diacidic light absorbing monomer.

54. The composition of claim 53 wherein Z is selected from the group consisting of:

SUB C7



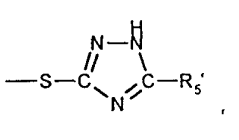
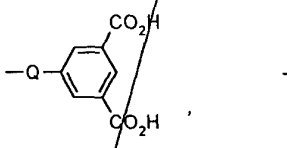
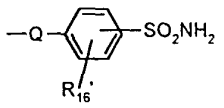
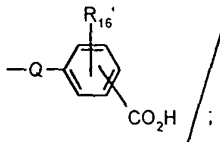
SUB C7

or

5

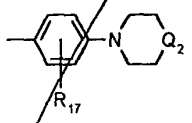
wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, -O C_2-C_6 alkylene-OH, O C_2-C_6 alkylene- C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene- C_1-C_6 alkanoyloxy, halogen, carboxy, C_1-C_6 alkoxycarbonyl, trifluoromethyl, $NHCOR_{24}$, $NHCO_2R_{24}$, $NHCON(R_{24})R_{25}$, and $NHSO_2R_{25}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl, R_{25} is selected from the group consisting of C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl wherein each C_1-C_{10} alkyl group in R_{24} and R_{25} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2H, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido, C_1-C_6 alkoxy,

SUB C17




or

;

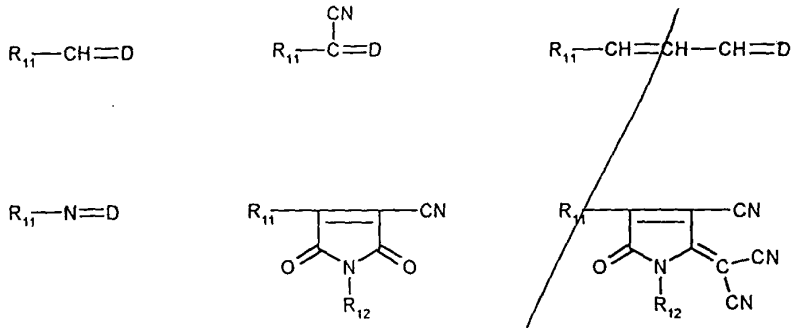
wherein R_5' is selected from the group consisting of hydrogen, C_1-C_6 alkyl or aryl; R_{16}' is selected from hydrogen or one or two groups selected from C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy; Q is selected from the group consisting of -O-, $-N(COR_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $-CON(R_{10})$, $-SO_2(R_{10})-$, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl or C_1-C_{10} alkyl; R_{18} and R_{19} are independently selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl and aryl or R_{18} and R_{19} may be

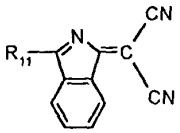
combined with another element to which they are attached to form a radical Z having the formula



wherein Q_2 is selected from the group consisting of a covalent bond, -O-, -S-, $-SO_2-$, -CO-, $-CO_2-$, $-N-(C_1-C_6$ alkyl)-, $-N(COC_1-C_6$ alkyl)-, $-N(SO_2C_1-C_6$ alkyl)-, -N(CO aryl)-, or-$N(SO_2$ aryl); R_{20}, R_{21} and R_{22} are independently selected from the group consisting of hydrogen or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, heteroaryl or aryl.

55. The composition of claim 26 or 51 wherein the light absorbing portion of A comprises the residue of at least one light absorbing monomer selected from the group consisting of methine, arylidene, polmethine, azamethine, 3-aryl-2,5-dioxypyrroline, 3-aryl-5-dicyanomethylene-2-oxypyrroline and arylisoindoline and having respectively the structures:



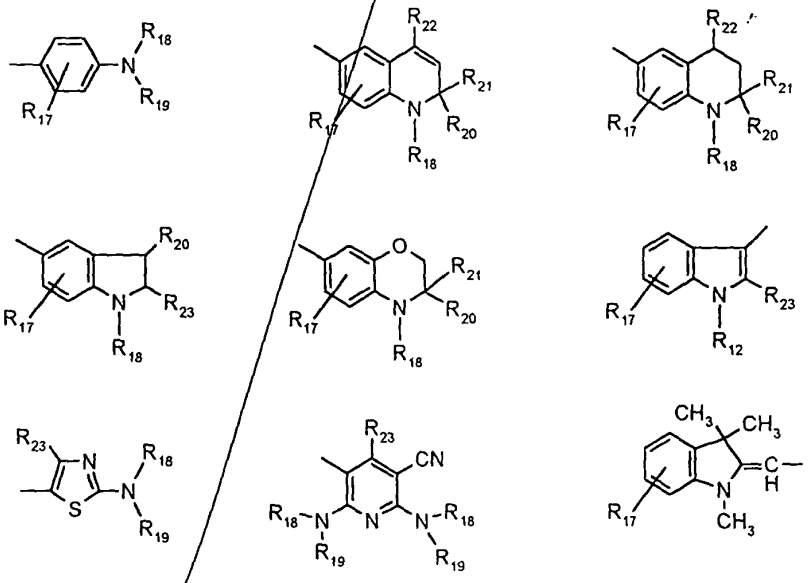


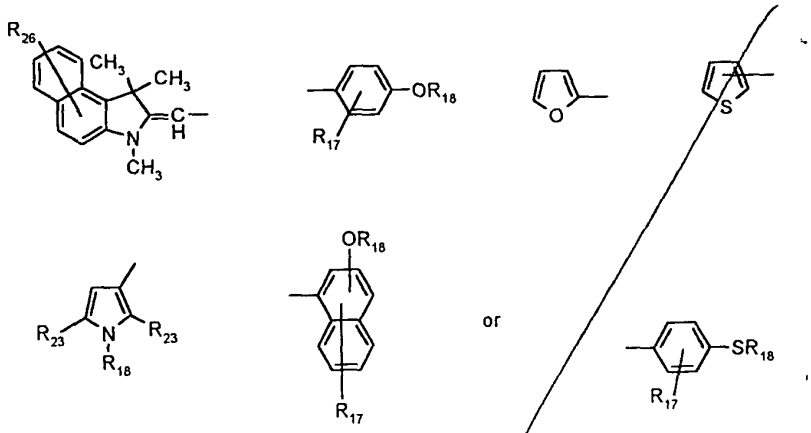
SUB C7

wherein R_{11} is the residue of an electron rich aromatic compound selected from the group consisting of an aniline, 1-naphthylamine, 1,2-dihydroquinoline, 1,2,3,4-tetrahydroquinoline, 1,3,3-trimethyl- 2-methyleneindole, 1,3-dihydro-2-methylene- 1,1,3-trimethyl-2H-benz[e]indole, imidazo [2,1-b] thiazole, benzomorpholine (3,4-dihydro-2H-1,4,benzoxazine), 2,3-dihydroindole, indole, 2-aminothiazole, julolidine (2,3,6,7-tetrahydro-1H, 5H- benz [ij] quinolizine, 1-oxajulolidine, 4H-pyrrolo [3,2,1-ij]-quinoline, phenol, naphthol, thiophenol, pyrrole, pyrazole, furan, thiophene, carbazole, phenothiazine or phenoxazine compound; R_{12} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 alkenyl, C_3-C_8-alkynyl, C_3-C_8 cycloalkyl, aryl, $+CH_2CH_2O+_{1-3}$ R_{13} and C_1-C_4 alkylene- C_3-C_8 cycloalkylene, wherein the C_1-C_6 alkyl groups may be substituted by at least one group selected from the group consisting of carboxy, C_1-C_6 carbalkoxy, C_1-C_6 alkanoyloxy, cyano, hydroxy, chlorine, fluorine, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl or aryl; R_{13} is selected from the group consisting of hydrogen, C_1-C_6 alkoxy or C_1-C_6 alkanoyloxy; wherein D is the residue of an active

methylene compound selected from the group consisting of malononitrile, α-cyanoacetic acid esters, malonic acid esters, α-cyanacetic acid amides, α-C_1-C_6 alkylsulfonylacetonitriles, α-arylsulfonylacetonitriles, α-C_1-C_6 alkanoylacetonitriles, α-aroylacetonitriles, α-heteroarylacetonitriles, bis(heteroaryl)methanes, 1,3-indanediones, 2-furanones, benzo-2-furanones, naphtho-2-furanones, 2-indolones, 3-cyano-1,6-dihydro-4-methyl-2,6-dioxy (2H)-pyridines, benzo (b) thieno-3-ylidene propane dinitrile-5,5-dioxides, 1,3-bis(dicyanomethylene) indanes, barbituric acid, 5-pyrazolones, dimedone, 3-oxo-2,3-dihydro-1-benzothiophene-1,1-dioxides or aryl-$C(CH_3)C=C(CN)_2$, with the proviso that two acidic functional groups containing one acidic hydrogen each, or a functional group containing two acidic hydrogens are present.

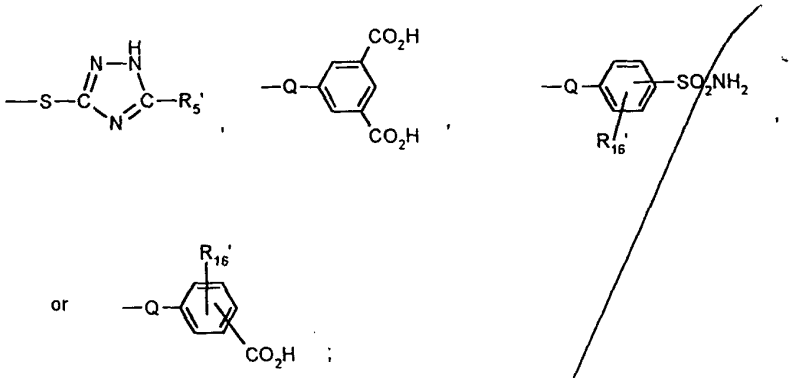
56. The composition of claim 55 wherein R_{11} is selected from the group consisting of the electron rich aromatic residues corresponding to the structures:





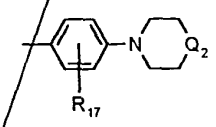
SUB C1

wherein R_{26} is selected from the group consisting of hydrogen or a group selected from the group consisting of C_1-C_6 alkoxycarbonyl, CO_2H, C_1-C_6 alkyl or C_1-C_6 alkoxy; wherein R_{17} is selected from the group consisting of hydrogen, and 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, -O C_2-C_6 alkylene-OH, O C_2-C_6 alkylene- C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene- C_1-C_6 alkanoyloxy, halogen, carboxy, C_1-C_6 alkoxycarbonyl, trifluoromethyl, $NHCOR_{24}$, $NHCO_2R_{24}$, $NHCON(R_{24})R_{25}$, and $NHSO_2R_{25}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl, R_{25} is selected from the group consisting of C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl wherein each C_1-C_{10} alkyl group in R_{24} and R_{25} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2H, CO_2 C_1-C_6 alkyl,



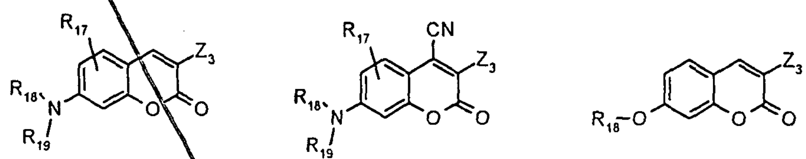
SUB C1

wherein R_5' is selected from the group consisting of hydrogen, C_1-C_6 alkyl or aryl; R_{16}' is selected from the group consisting of hydrogen, one or two groups selected from C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy; Q is selected from the group consisting of -O-, $-N(COR_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $CON(R_{10})$, $SO_2(R_{10})-$ wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl or C_1-C_{10} alkyl; R_{18} and R_{19} are independently selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl and aryl or R_{18} and R_{19} may be combined with another element to which they are attached to form a radical Z having the formula



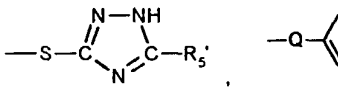
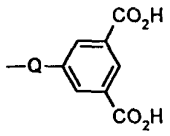
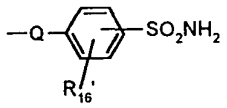
wherein Q_2 is selected from the group consisting of a covalent bond, -O-, -S-, $-SO_2-$, -CO-, $-CO_2-$, $-N-(C_1$-C_6 alkyl)-, $-N(CO\ C_1$-C_6 alkyl)-, $-N(SO_2\ C_1$-C_6 alkyl)-, -N(CO aryl)-, or-$N(SO_2$ aryl); R_{20}, R_{21} and R_{22} are independently selected from the group consisting of hydrogen or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, heteroaryl or aryl.

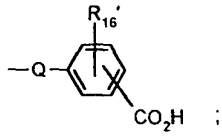
57. The composition of claim 51 wherein the light absorbing portion of A_2 comprises a residue of at least one diacidic coumarin compounds selected from the group consisting of the structures



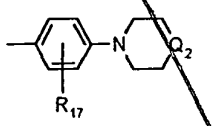
wherein Z_3 is selected from the group consisting of cyano, C_1-C_6 alkoxycarbonyl, C_1-C_6 alkylsulfonyl, arylsulfonyl, aryl, heteroaryl, formyl, aroyl, C_1-C_6 alkanoyl or-CH=D, wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, -O C_2-C_6 alkylene-OH, O C_2-C_6 alkylene- C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene- C_1-C_6 alkanoyloxy, halogen, carboxy, C_1-C_6 alkoxycarbonyl, trifluoromethyl, $NHCOR_{24}$, $NHCO_2R_{24}$, $NHCON(R_{24})R_{25}$, and $NHSO_2R_{25}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl, R_{25} is selected from the group consisting of C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl wherein each C_1-C_{10} alkyl group in R_{24} and R_{25} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2H, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido, C_1-C_6 alkoxy,

Sub B4 Cont.

or  ;

wherein R_5' is selected from the group consisting of hydrogen, C_1-C_6 alkyl or aryl; R_{16}' is selected from hydrogen or one or two groups selected from C_1-C_6 alkyl, halogen, and C_1-C_6 alkoxy; Q is selected from the group consisting of -O-, $-N(COR_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $CON(R_{10})$, $SO_2(R_{10})-$, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl or C_1-C_{10} alkyl; R_{18} and R_{19} are independently selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl and aryl or R_{18} and R_{19} may be combined with another element to which they are attached to form a radical Z having the formula



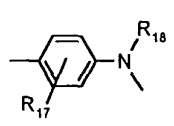
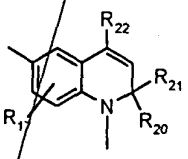
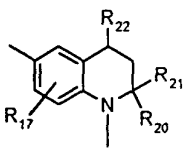
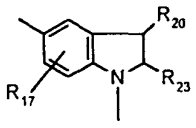
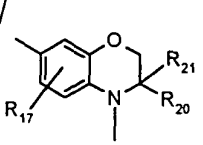
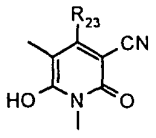
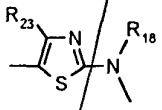
wherein Q_2 is selected from the group consisting of a covalent bond, -O-, -S-, $-SO_2-$, -CO-, $-CO_2-$, $-N-(C_1$-C_6 alkyl)-, $-N(CO\ C_1$-C_6 alkyl)-, $-N(SO_2\ C_1$-C_6 alkyl)-, $-N(CO$ aryl)-, or$-N(SO_2$ aryl); R_{20}, R_{21} and R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, heteroaryl or aryl; wherein D is the residue of an active methylene compound selected from

Subst cont.

the group consisting of malononitrile, α-cyanoacetic acid esters, malonic acid esters, α-cyanacetic acid amides, α-C_1-C_6 alkylsulfonylacetonitriles, α-arylsulfonylacetonitriles, α-C_1-C_6 alkanoylacetonitriles, α-aroylacetonitriles, α-heteroarylacetonitriles, bis(heteroaryl)methanes, 1,3-indanediones, 2-furanones, benzo-2-furanones, naphtho-2-furanones, 2-indolones, 3-cyano-1,6-dihydro-4-methyl-2,6-dioxy (2H)-pyridines, benzo (b) thieno-3-ylidene propane dinitrile-5,5-dioxides, 1,3-bis(dicyanomethylene) indanes, barbituric acid, 5-pyrazolones, dimedone, 3-oxo-2,3-dihydro-1-benzothiophene-1,1-dioxides or aryl-$C(CH_3)C=C(CN)_2$, with the proviso that two acidic functional groups containing one acidic hydrogen each, or a functional group containing two acidic hydrogens are present.

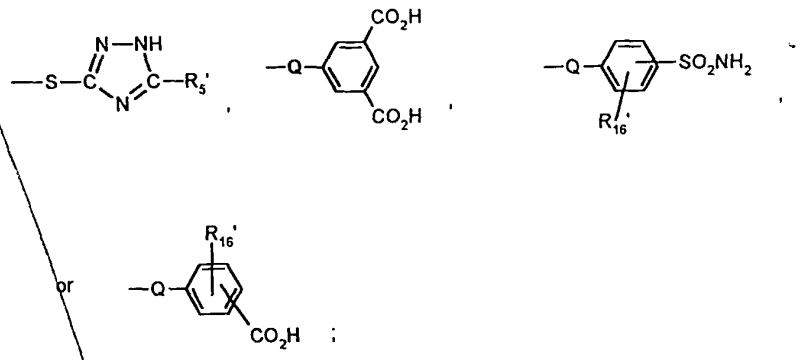
58. The composition of claim 54 wherein the light absorbing portion of A_1 comprises the residue of at least one bis-azo light absorbing monomer wherein the bis coupling component Y_1 is represented by the structure Z_1-L_1-Z_2, wherein Z_1 and Z_2 are independently selected from the group consisting of

SUB C1







or


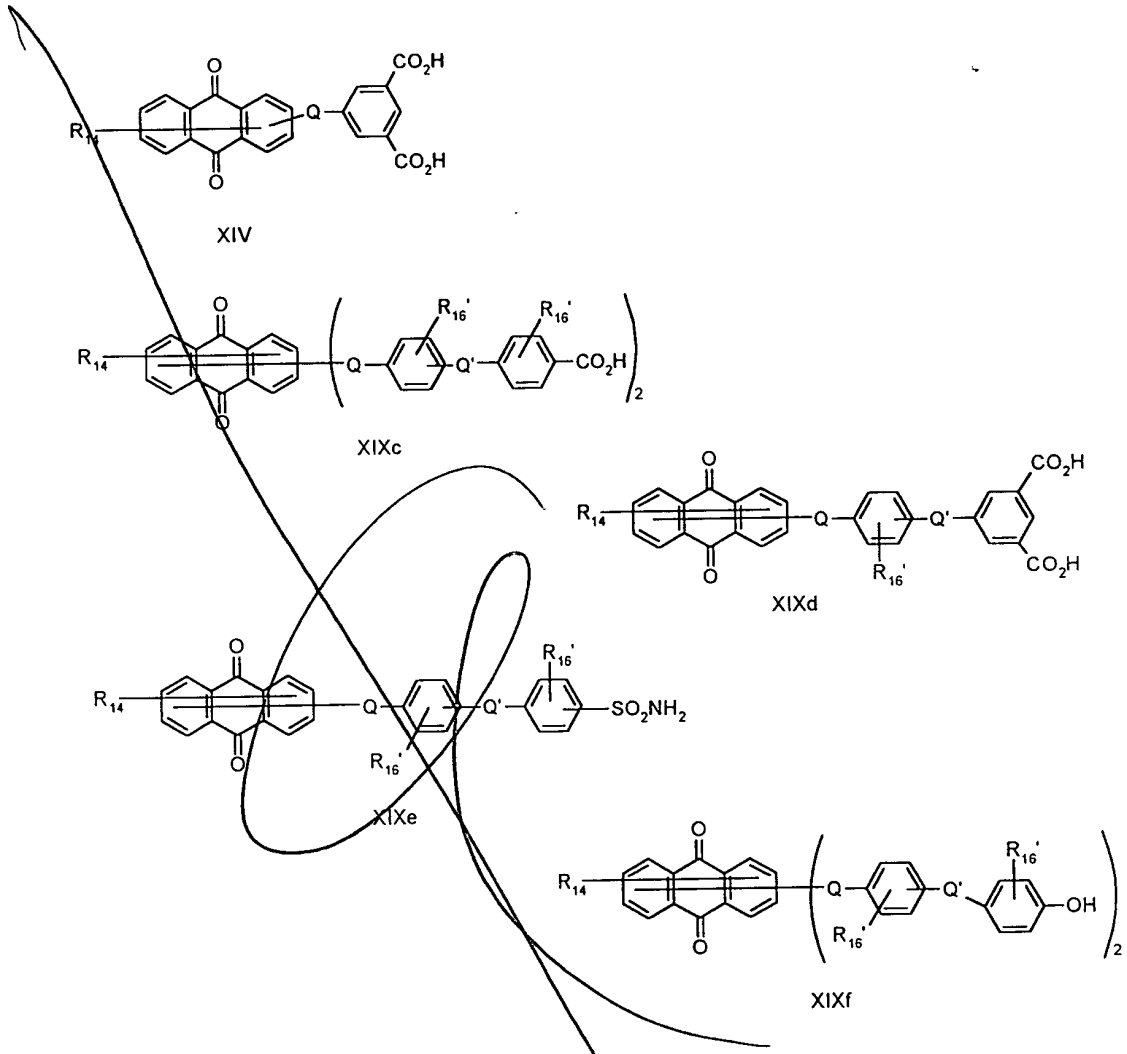
wherein, L_1 is bonded to the nitrogen atom of Z_1 and Z_2; wherein L_1 is selected from the group consisting of C_2-C_{12} alkylene, C_3-C_8 cycloalkylene, arylene, C_1-C_4 alkylene-C_3-C_8 cycloalkylene-C_1-C_4 alkylene, C_1-C_4 alkylene-arylene-C_1-C_4 alkylene, C_2-C_4 alkylene-O-arylene-O-C_2-C_4 alkylene, ~~(~~C_2-C_4 alkylene O~~)~~$_{1-3}$ C_2-C_4 alkylene, C_2-C_4 alkylene-S-C_2-C_4 alkylene, C_2-C_4 alkylene-SO_2-C_2-C_4 alkylene, C_2-C_4 alkylene-N(SO_2 C_1-C_6 alkyl)-C_2-C_4 alkylene, C_2-C_4 alkylene-N(SO_2 aryl)-C_2-C_4-alkylene, C_2-C_4 alkylene-OCO_2-C_2-C_4 alkylene, C_2-C_4 alkylene-O_2C-arylene-CO_2-C_2-C_4 alkylene, C_2-C_4 alkylene-O_2C-C_1-C_{12} alkylene-CO_2-C_2-C_4 alkylene, C_2-C_4 alkylene-O_2C-C_3-C_8 cycloalkylene-CO_2-C_2-C_4 alkylene, C_2-C_4 alkylene-NHCO-C_2-C_4 alkylene and C_2-C_4 alkylene-$NHSO_2$-C_2-C_4 alkylene; wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, -O C_2-C_6 alkylene-OH, O C_2-C_6 alkylene-C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene-C_1-C_6 alkanoyloxy, halogen, carboxy, C_1-C_6 alkoxycarbonyl, trifluoromethyl, $NHCOR_{24}$, $NHCO_2R_{24}$, $NHCON(R_{24})R_{25}$, and $NHSO_2R_{25}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl, R_{25} is selected from the group consisting of C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl wherein each C_1-C_{10} alkyl group in R_{24} and R_{25} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2H, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido, C_1-C_6 alkoxy,

SUB C17



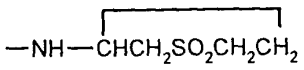
wherein R_5' is selected from the group consisting of hydrogen, C_1-C_6 alkyl or aryl; R_{16}' is selected from hydrogen or one or two groups selected from C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy; Q is selected from the group consisting of -O-, $-N(COR_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $CON(R_{10})$, $SO_2(R_{10})-$, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl or C_1-C_{10} alkyl; R_{18} is selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl and aryl; R_{20}, R_{21} R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, heteroaryl or aryl.

~~59.~~ The diacidic anthraquinone compounds having Formulae



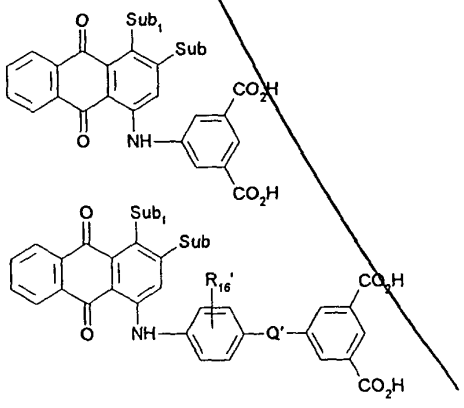
wherein R_{14} is selected from the group consisting of hydrogen, 1-4 groups selected from amino, C_1-C_{10} alkylamino, C_3-C_8 alkenylamino, C_3-C_8 alkynylamino, C_3-C_8 cycloalkylamino, arylamino, halogen, C_1-C_6 alkoxy, C_1-C_6 alkylthio, aryl, aroyl, C_1-C_6 alkanoyl, C_1-C_6 alkanoyloxy, NHCO C_1-C_6 alkyl, NHCOaryl, $NHCO_2$ C_1-C_6 alkyl, $NHSO_2$ C_1-C_6 alkyl, $NHSO_2$ aryl, C_1-C_6 alkoxycarbonyl, aryloxy, arylthio, heteroarylthio, cyano, nitro, trifluoromethyl, thiocyano, SO_2C_1-C_6 alkyl, SO_2 aryl, $-SO_2NH$ C_1-C_6 alkyl, $-SO_2N(C_1$-C_6 alkyl)$_2$, $-SO_2N(C_1$-C_6 alkyl) aryl, CONH C_1-C_6 alkyl, CON(C_1-C_6 alkyl)$_2$, CON(C_1-C_6 alkyl) aryl, C_1-C_6 alkyl, furfurylamino,

tetrahydrofurfurylamino, 4-(hydroxymethyl) cyclohexanemethylamino,



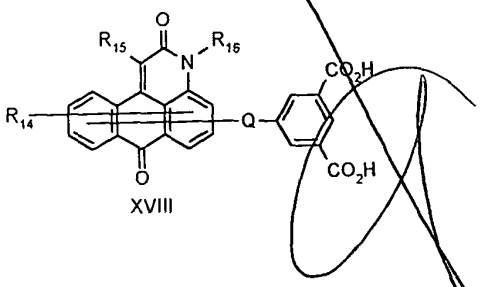
or hydroxy; Q and Q' are independently selected from the group consisting of-O-, $-N(COR_{10})-$, $-N(SO_2R_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $-CON(R_{10})-$, $SO_2N(R_{10})-$, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl, or C_1-C_{10} alkyl; R_{16}' is selected from hydrogen or one or two groups selected from C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy; wherein each C_1-C_6 alkyl group and C_1-C_6 alkyl group which is a portion of another group may contain at least one substituent selected from the group consisting of hydroxy, cyano, chlorine, fluorine, C_1-C_6 alkoxy, C_3-C_8 cycloalkoxy, C_1-C_6 alkylcyclohexyl, hydroxmethyl cyclohexyl, aryl and heteroaryl; with the provision that two acidic groups containing one acidic proton each or one acidic group containing two acidic hydrogens be present in the compounds of Formula XIV, XIXc, XIXd, XIXe XIXf.

60. The diacidic anthraquinone compounds of claim 57 having the following structures:

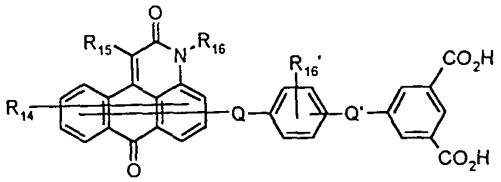


wherein Sub is a substituent selected from the group consisting of halogen, trifluoromethyl, aroyl, C_1-C_6 alkanoyl, C_1-C_6 alkoxycarbonyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, aryloxy, arylthio, heteroarylthio, cyano, nitro, SO_2NHC_1-C_6 alkyl, SO_2N (C_1-C_6 alkyl)$_2$, SO_2N (C_1-C_6 alkyl) aryl, CONH C_1-C_6 alkyl, CON (C_1-C_6 alkyl)$_2$, CON (C_1-C_6 alkyl) aryl, C_1-C_6 alkyl, SO_2 C_1-C_6 alkylsulfonyl and SO_2 aryl; Sub_1 is a substituent selected from the group consisting of amino, C_1-C_{12} alkylamino, arylamino and C_3-C_8 cycloalkylamino.

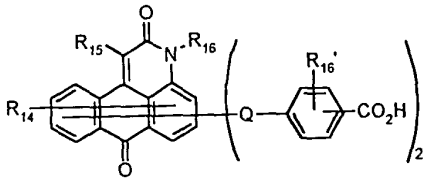
61. The diacidic anthrapyridone compounds having Formulae



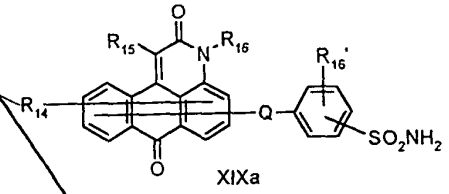
XVIII



XVIII a



XVIII b

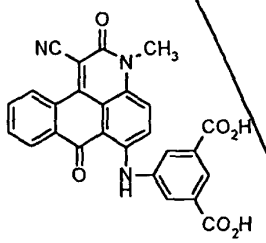


XIXa

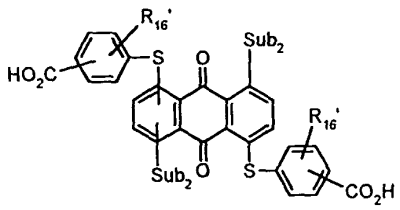
wherein R_{14} is selected from the group consisting of hydrogen, 1-4 groups selected from amino, C_1-C_{10} alkylamino, C_3-C_8 alkenylamino, C_3-C_8 alkynylamino, C_3-C_8 cycloalkylamino, arylamino, halogen, C_1-C_6 alkoxy, C_1-C_6 alkylthio, aryl, aroyl, C_1-C_6 alkanoyl, C_1-C_6 alkanoyloxy, NHCO C_1-C_6 alkyl, NHCOaryl, $NHCO_2$ C_1-C_6 alkyl, $NHSO_2$ C_1-C_6 alkyl, $NHSO_2$ aryl, C_1-C_6 alkoxycarbonyl, aryloxy, arylthio, heteroarylthio, cyano, nitro, trifluoromethyl, thiocyano, SO_2C_1-C_6 alkyl, SO_2 aryl, $-SO_2NH$ C_1-C_6 alkyl, $-SO_2N(C_1$-C_6

alkyl)$_2$, -SO_2N(C_1-C_6 alkyl) aryl, CONH C_1-C_6 alkyl, CON(C_1-C_6 alkyl)$_2$, CON(C_1-C_6 alkyl) aryl, C_1-C_6 alkyl or hydroxy; Q and Q' are independently selected from the group consisting of-O-, -N(COR_{10})-, -N(SO_2R_{10})-, -N(R_{10})-, -S-, -SO_2-, -CO_2-, -CON(R_{10})-, SO_2N (R_{10})-, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl, or C_1-C_{10} alkyl; R_{15} is selected from the group consisting of hydrogen, cyano, C_1-C_6 alkylamino, C_1-C_6 alkoxy, halogen, arylthio, aryl, heteroaryl, heteroarylthio, C_1-C_6 alkoxycarbonyl, aroyl or arylsulfonyl; R_{16} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl and aryl; R_{16}' is selected from the group consisting of hydrogen or one or two groups selected from C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy; wherein each C_1-C_6 alkyl group and C_1-C_6 alkyl group which is a portion of another group may contain at least one substituent selected from the group consisting of hydroxy, cyano, chlorine, fluorine, C_1-C_6 alkoxy, C_3-C_8 cycloalkoxy, C_1-C_6 alkylcyclohexyl, hydroxmethyl cyclohexyl, aryl and heteroaryl; with the provision that two acidic groups containing one acidic proton each or one acidic group containing two acidic hydrogens be present in the compounds of Formula XVIII, XVIIIa, XVIIIb, and XIXa.

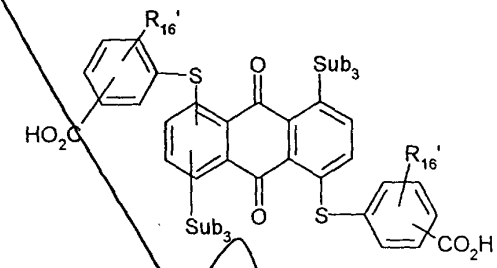
62. The diacidic anthrapyridone compound of claim 61 having the structure:



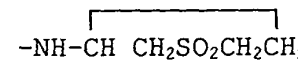
63. The diacidic anthraquinone compounds having the formulae



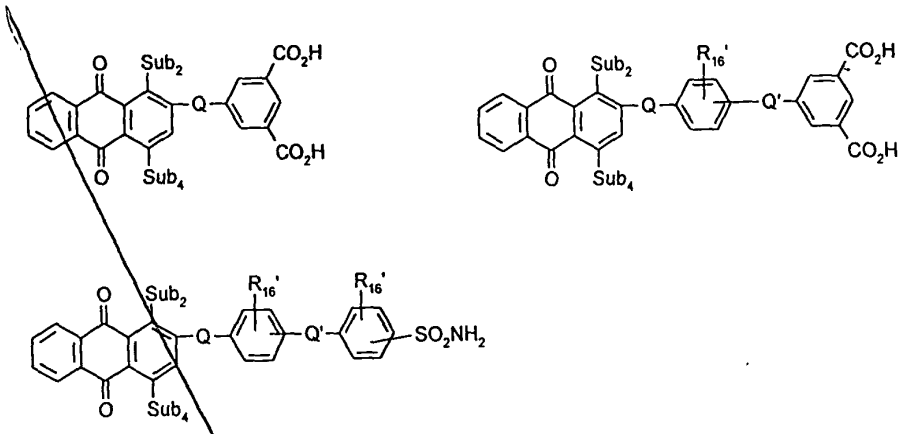
or



where R_{16}' is selected from the group consisting of hydrogen or one or two groups selected from C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy; and Sub_3 is a substituent selected from C_1-C_6 alkylthio, arylthio and heteroarylthio and Sub_2 is a substituent selected from the group consisting of amino, C_1-C_{10} alkylamino, C_3-C_8 alkenylamino, C_3-C_8 alkynylamino, C_3-C_8 cycloalkylamino, arylamino, furfurylamino, tetrahydrofurfurylamino, 4-(hydroxymethyl) cyclohexanemethylamino, NHCO C_1-C_6 alkyl, NHCO aryl, $NHCO_2$ C_1-C_6 alkyl, $NHSO_2$ C_1-C_6 alkyl, $NHSO_2$ aryl and

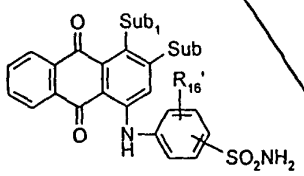


64. The diacidic anthraquinone compounds of claim 59 having the formulae:



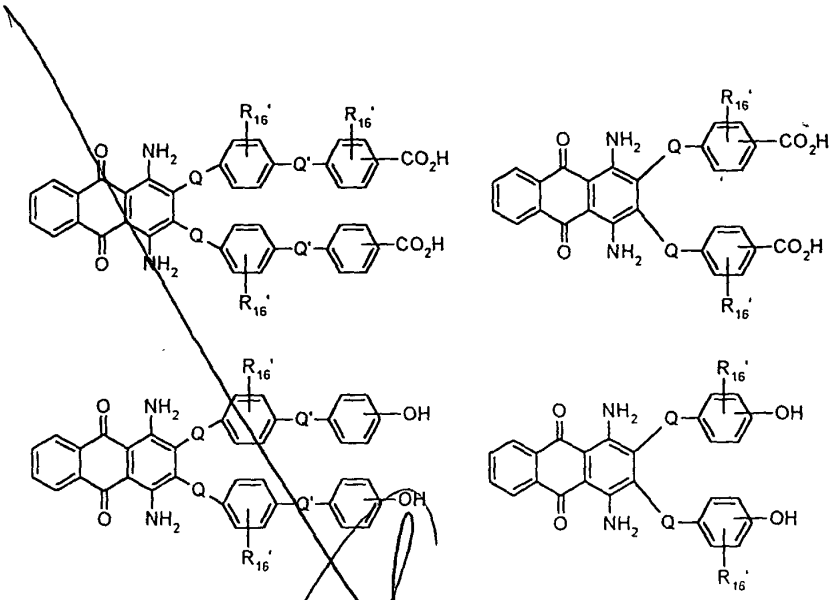
wherein Sub_2 is as defined in claim 63; Sub_4 is selected from the group consisting of Sub_2, NHCO C_1-C_6 alkyl, $NHCO_2$ C_1-C_6 alkyl, NHCO aryl, $NHSO_2$ C_1-C_6 alkyl, $NHSO_2$ aryl, C_1-C_6 alkylthio, arylthio, heteroarylthio and hydroxy; Q is selected from the group consisting of -O-, S-, $-SO_2-$; Q' selected from the group consisting of -O-, $-N(COR_{10})-$, $-N(SO_2R_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $-CON(R_{10})-$, $SO_2N(R_{10})-$, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl, or C_1-C_{10} alkyl.

65. A diacidic anthraquinone compounds having the formula



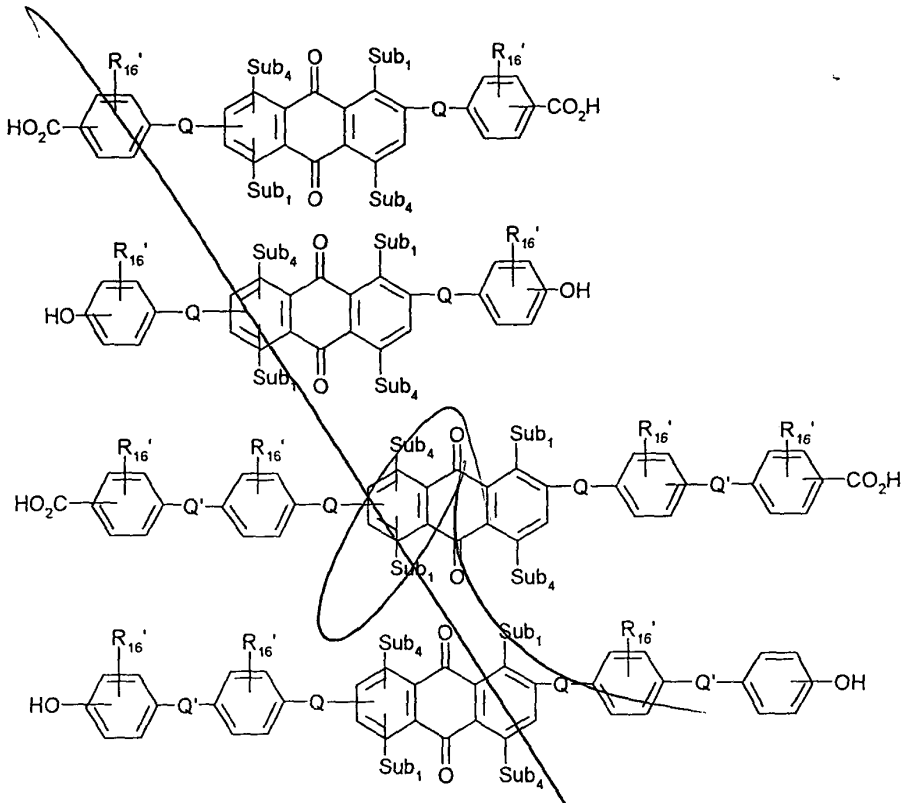
wherein Sub, Sub_1 and R_{16}' are as defined in claim 60.

66. The diacidic anthraquinone compounds having the structures



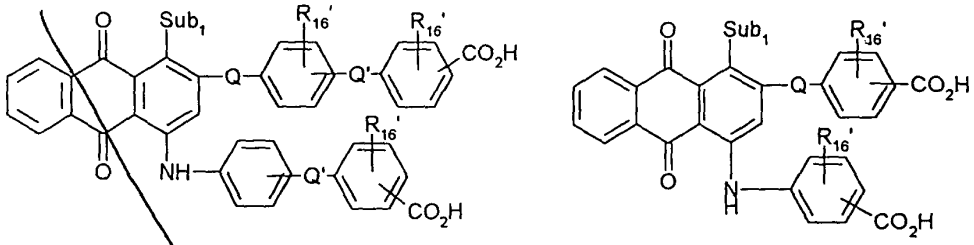
wherein Q is selected from the group consisting of -O-, -S- and $-SO_2-$; Q' is selected from the group consisting of-O-, $-N(COR_{10})-$, $-N(SO_2R_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $-CON(R_{10})-$, $SO_2N(R_{10})-$, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl, or C_1-C_{10} alkyl; and R_{16}' is selected from the group consisting of hydrogen or one or two groups selected from C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy.

67. The diacidic anthraquinone compounds having the structures:



wherein Sub_1 defined as in claim 60, Sub_4 is defined as in claim 64, Q is selected from the group consisting of -O-, -S- and $-SO_2-$; Q' is selected from the group consisting of-O-, $-N(COR_{10})-$, $-N(SO_2R_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $-CON(R_{10})-$, $SO_2N(R_{10})-$, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl, or C_1-C_{10} alkyl; and R_{16}' is selected from the group consisting of hydrogen or one or two groups selected from C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy.

68. The diacidic anthraquinone compounds having the structures:



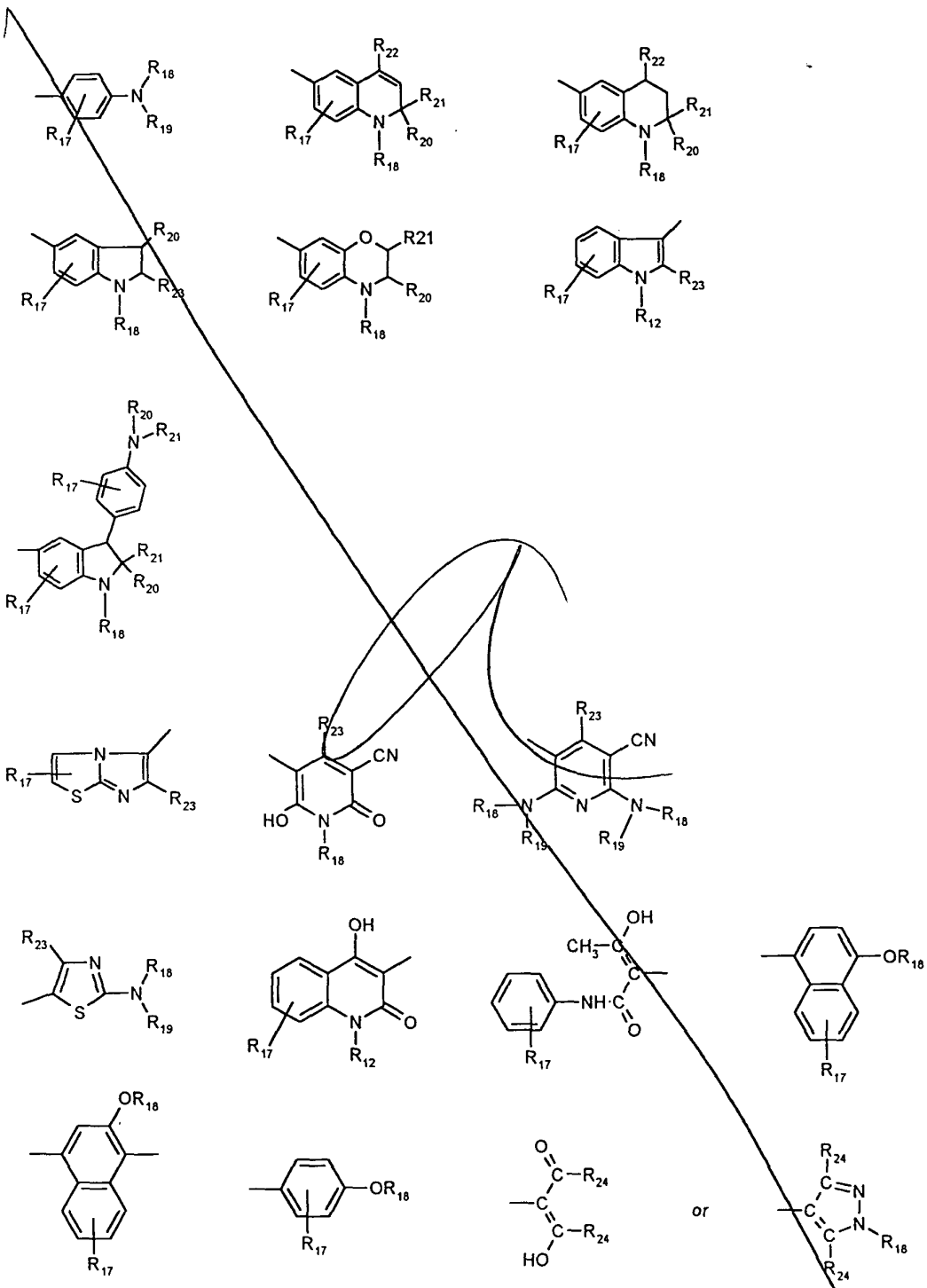
wherein Q is selected from the group consisting of -O-, -S- and $-SO_2-$; Sub_1 is a substitutent selected from the group consisting of amino, C_1-C_{12} alkylamino, arylamino and C_3-C_8 cycloalkylamino; Q' is selected from the group consisting of-O-, $-N(COR_{10})-$, $-N(SO_2R_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $-CON(R_{10})-$, $SO_2N(R_{10})-$, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl, or C_1-C_{10} alkyl; and R_{16}' is selected from the group consisting of hydrogen or one or two groups selected from C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy.

69. The diacidic azo and disazo compounds of the formulae $R_6-N=N-Z$ (VI) and $R_6-N=N-R_7-N=N-Z$ (VII), respectively wherein R_6 is the residue of a diazotized aromatic or heteroaromatic amine and Z is the residue of an electron rich coupling component selected from the group consisting of the classes of anilines, 1-aminonaphthalenes, 1,2-dihydroquinolines,1,2,3,4-teterahydroquinolines, benzomorpholines (3,4-dihydro-2H-1,4-benzoxazine), pyrazolones, pyrazoles, 3-cyano-6-hydroxy-2-pyridones, 2,3-dihydroindoles, indoles, 4-hydroxycoumarins, 4-hydroxy-2-quinolones, imidazo[2,1-b]thiazoles, julolidines (2,3,6,7-tetrahydro-1H,5H-benzo[ij]quinolizines), 1-oxajulolidines, 1,2,5,6-tetrahydro-4H-pyrrolo[3,2,1-ij]quinolines, 2,6-diamino-3 cyanopyridines, 2-aminothiazoles, 2-aminothiophenes, 5,5-dimethyl-1,3-cyclohexanedione (dimedone), phenols, naphthols, 2,4-pentanediones or acetoacetarylides; R_7 is a divalent aromatic or heteroaromatic radical selected from the group consisting of the classes of 1,4-phenylene, naphthalene -1, 4-diyl, thiazol-2,5-diyl and thiophene -

2,5-diyl; with the provision that R_6 or Z contains a carboxy ($-CO_2H$) acidic group and that another acidic group selected from the group consisting of ($-CO_2H$) , -SH, -OH attached to aromatic ring, -CONHCO-, $-SO_2NH-CO-$, $-SO_2NH-SO_2-$, and 1(H) 1, 2, 4-triazol-3-yl, be present on or as part of R_6 or Z so that each R_6 and Z moiety contains one acidic group.

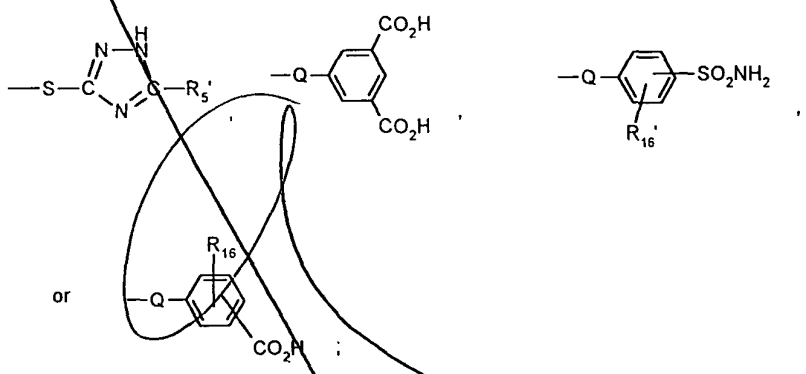
70. The diacidic azo and disazo compounds of claim 69 wherein R_6 and Z each contain a carboxy ($-CO_2H$) acidic group.

71. The diacidic azo and bisazo compounds of claim 69 wherein R_6 is the residue of substituted diazotized aromatic or heteroaromatic amine compounds derived from the classes of aniline, 1-aminonaphthalene, 1-aminoanthraquinone, 4-aminoazobenzene, 2-aminothiazole, 2-aminobenzothiazole, 3-amino- 2,1-benzisothiazole, 2-aminothieno[2,3-d]thiazole, 5-aminoisothiazole, 5-aminopyrazole, 4-aminopyrazoloisothiazole, 2-amino-1,3,4-thiadiazole, 5-amino-1,2,4-thiadiazole, 5-amino-1,2,3-triazole, 2-amino-1,3,4-triazole, 2(5) aminoimidazole, 3-aminopyridine, 2(3) aminothiophene, 2(3)-aminobenzo[b]thiophene, 2-aminothieno[3,2-b]thiophene, 3-aminothieno[2,3-c]isothiazole, 3-amino-7-benz-2,1-isothiazole, 3-aminobenzothienoisothiazole, 3-aminoisothiazole[3,4-d]pyrimidine, 5-amino-1,2,3-triazole, 3(4) aminophthalimide and 5(6) amino-1,2-benzisothiazolon-1,1-dioxide and Z is the residue of an electron rich coupling coupler residue selected from the group consisting of the following:

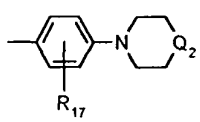


wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6

alkoxy, C_1-C_6 alkylthio, -O C_2-C_6 alkylene-OH, O C_2-C_6 alkylene- C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene- C_1-C_6 alkanoyloxy, halogen, carboxy, C_1-C_6 alkoxycarbonyl, trifluoromethyl, $NHCOR_{24}$, $NHCO_2R_{24}$, $NHCON(R_{24})R_{25}$, and $NHSO_2R_{25}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl, R_{25} is selected from the group consisting of C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl wherein each C_1-C_{10} alkyl group in R_{24} and R_{25} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2H, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido, C_1-C_6 alkoxy,



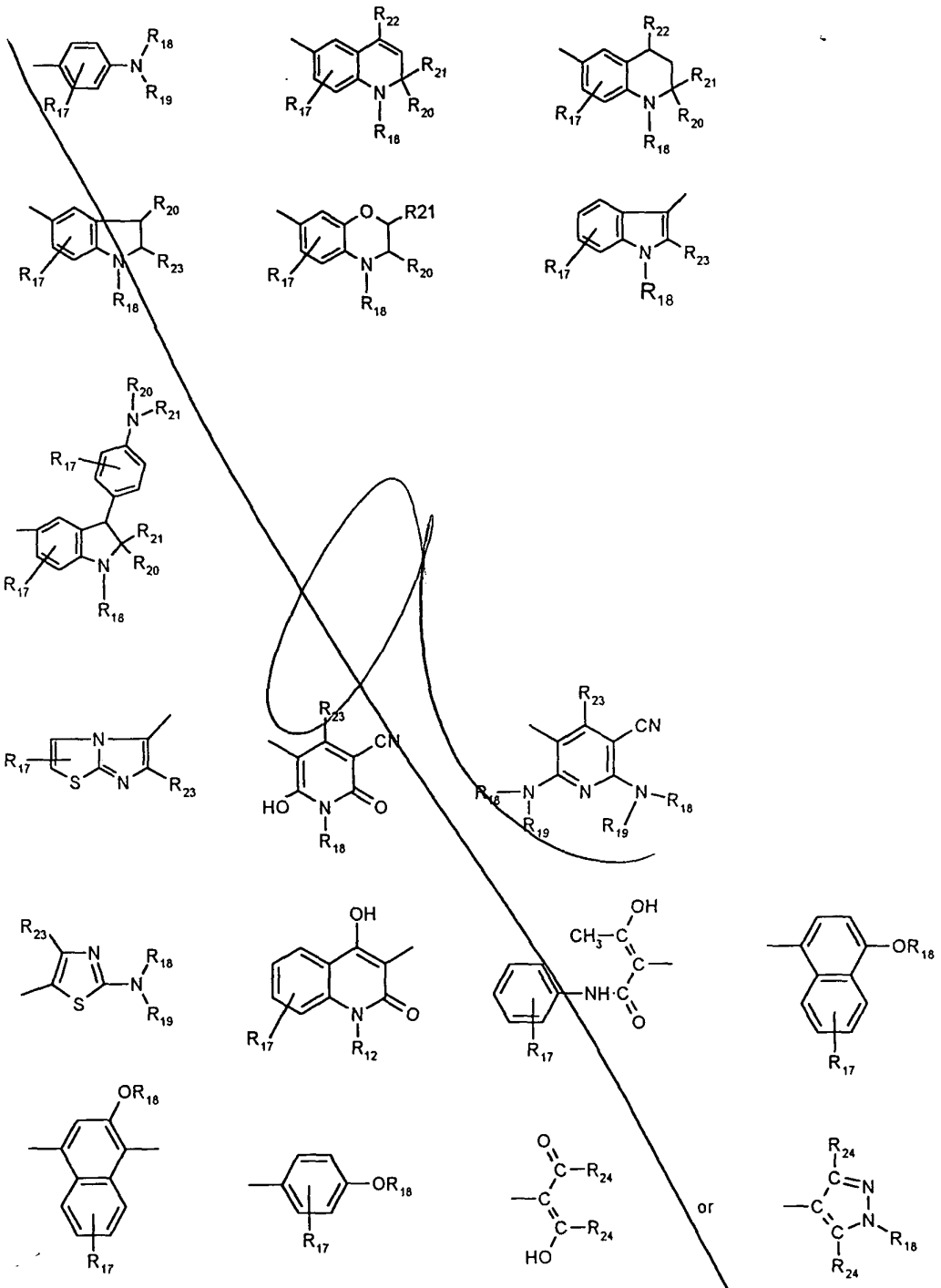
wherein R_5', R_{16}' and Q are as defined in claim 63; R_{18} and R_{19} are independently selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl and aryl or R_{18} and R_{19} may be combined with another element to which they are attached to form a radical Z having the formula



wherein Q_2 is selected from the group consisting of a covalent bond, -O-, -S-, $-SO_2-$, -CO-, $-CO_2-$, -N-(C_1-C_6 alkyl)-, -N(CO C_1-C_6 alkyl)-, -N(SO_2 C_1-C_6 alkyl)-, -N(CO aryl)-, or-N(SO_2 aryl); R_{20}, R_{21} and R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, heteroaryl or aryl.

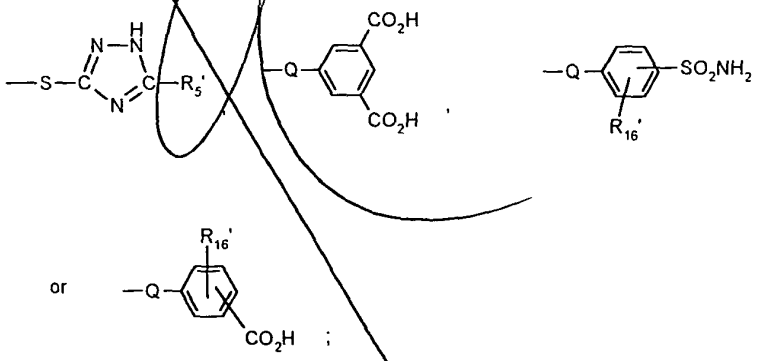
72. The diacidic azo and disazo compounds of claim 69 of the formulae R_6-N=N-Z (VI) and R_6-N=N-R_7-N=N-Z (VII), respectively, wherein one of R_6 and Z contains two carboxy ($-CO_2H$) acidic groups.

73. The diacidic azo and disazo compounds of claim 69 or 72 wherein R_6 is the residue of a diazotized substituted or unsubstituted diazotized aromatic or heteromatic amine compound derived from an amine selected from aniline, 1-aminonaphthalene, 1-aminoanthraquinone, 4-aminoazobenzene, 2-aminothiazole, 2-aminobenzothiazole, 3-amino- 2,1-benzisothiazole, 2-aminothieno[2,3-d]thiazole, 5-aminoisothiazole, 5-aminopyrazole, 4-aminopyrazoloisothiazole, 2-amino-1,3,4-thiadiazole, 5-amino-1,2,4-thiadiazole, 5-amino-1,2,3-triazole, 2-amino-1,3,4-triazole, 2(5) aminoimidazole, 3-aminopyridine, 2(3) aminothiophene, 2(3) aminobenzo[b]thiophene, 2-aminothieno[3,2-b]thiophene, 3-aminothieno[2,3-c]isothiazole, 3-amino-7-benz- 2,1-isothiazole, 3-aminobenzothienoisothiazole, 3-aminoisothiazole[3,4-d]pyrimidine, 5-amino- 1,2,3-triazole, 3(4) aminophthalimide and 5(6) amino-1,2-benzisothiazolon-1,1-dioxide and Z is the residue of an electron rich coupling component selected from the group consisting of the following:

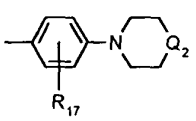


wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6

alkoxy, C_1-C_6 alkylthio, -O C_2-C_6 alkylene-OH, O C_2-C_6 alkylene- C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene- C_1-C_6 alkanoyloxy, halogen, carboxy, C_1-C_6 alkoxycarbonyl, trifluoromethyl, $NHCOR_{24}$, $NHCO_2R_{24}$, $NHCON(R_{24})R_{25}$, and $NHSO_2R_{25}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl, R_{25} is selected from the group consisting of C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl wherein each C_1-C_{10} alkyl group in R_{24} and R_{25} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2H, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido, C_1-C_6 alkoxy,

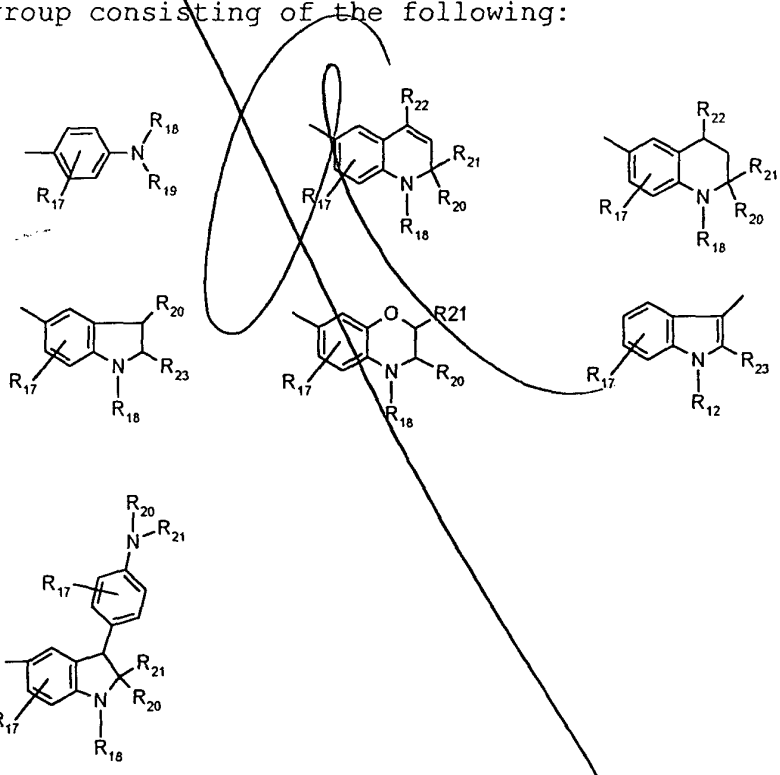


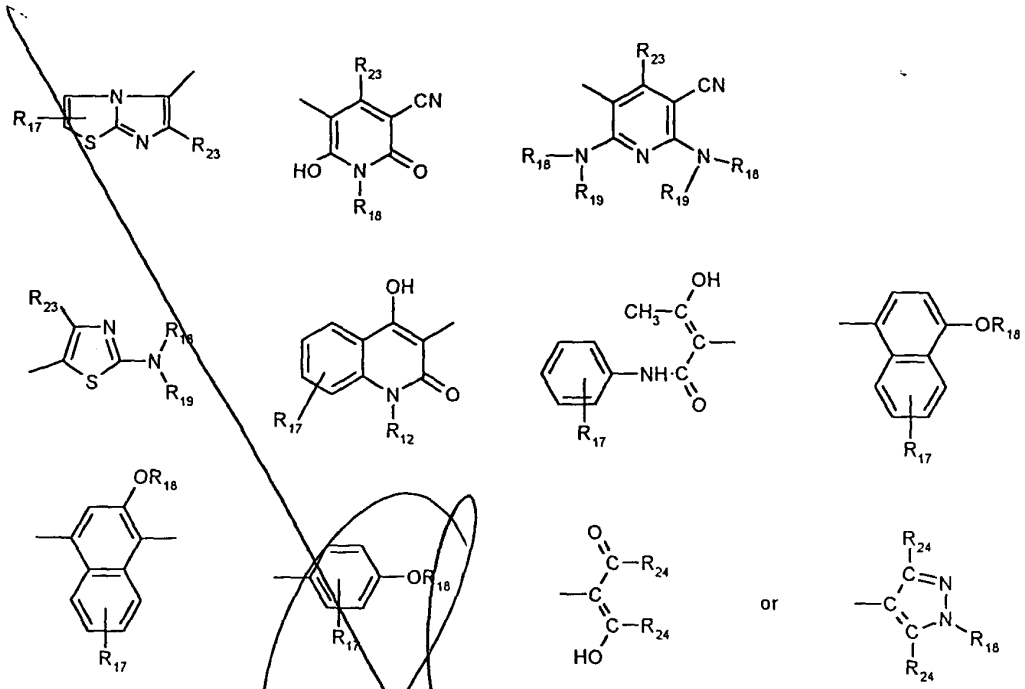
wherein R_5', R_{16}' and Q are as defined in claim 63; R_{18} and R_{19} are independently selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl and aryl or R_{18} and R_{19} may be combined with another element to which they are attached to form a radical Z having the formula



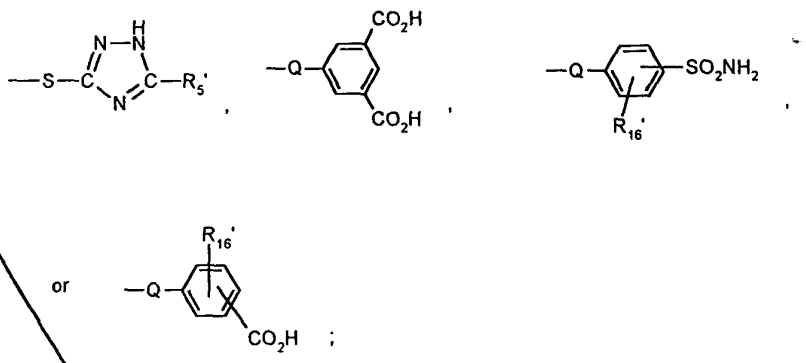
wherein Q_2 is selected from the group consisting of a covalent bond, -O-, -S-, $-SO_2-$, -CO-, $-CO_2-$, -N-(C_1-C_6 alkyl)-, -N(CO C_1-C_6 alkyl)-, -N(SO_2 C_1-C_6 alkyl)-, -N(CO aryl)-, or-N(SO_2 aryl); R_{20}, R_{21} and R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_1-C_8 cycloalkyl, heteroaryl or aryl.

74. The diacidic azo and bisazo compounds of claim 72 wherein Z is an electron rich coupler selected from the group consisting of the following:

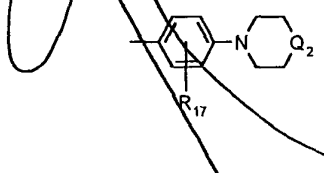




wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, -O C_2-C_6 alkylene-OH, O C_2-C_6 alkylene- C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene- C_1-C_6 alkanoyloxy, halogen, carboxy, C_1-C_6 alkoxycarbonyl, trifluoromethyl, $NHCOR_{24}$, $NHCO_2R_{24}$, $NHCON(R_{24})R_{25}$, and $NHSO_2R_{25}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl, R_{25} is selected from the group consisting of C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl wherein each C_1-C_{10} alkyl group in R_{24} and R_{25} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2H, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido, C_1-C_6 alkoxy,



wherein R_5', R_{16}' and Q are as defined in claim 63; R_{18} and R_{19} are independently selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl and aryl or R_{18} and R_{19} may be combined with another element to which they are attached to form a radical Z having the formula



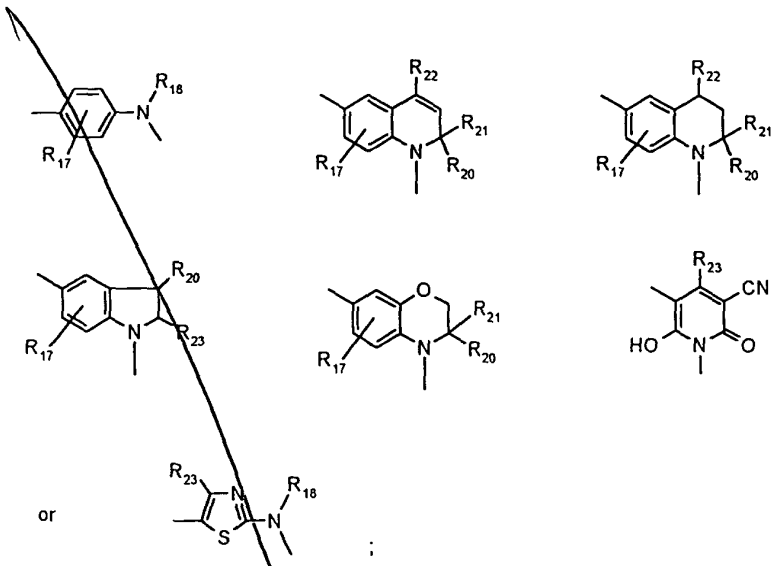
wherein Q_2 is selected from the group consisting of a covalent bond, -O-, -S-, $-SO_2-$, -CO-, $-CO_2-$, $-N-(C_1-C_6$ alkyl)-, $-N(CO\ C_1-C_6$ alkyl)-, $-N(SO_2\ C_1-C_6$ alkyl)-, -N(CO aryl)-, or-$N(SO_2$ aryl); R_{20}, R_{21} and R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, heteroaryl or aryl.

75. The diacidic bisazo compounds having the formula $R_6-N=N-Y_1-N=N-R_6$ (VIIa) wherein R_6 is the residue of a substituted diazotized aromatic or heteroaromatic amine compound derived from the classes of aniline, 1-aminonaphthalene, 1-aminoanthraquinone, 4-aminoazobenzene, 2-aminothiazole, 2-aminobenzothiazole, 3-amino-2,1-benzisothiazole, 2-aminothieno[2,3-d]thiazole,

5-aminoisothiazole, 5-aminopyrazole, 4-aminopyrazoloisothiazole, 2-amino-1,3,4-thiadiazole, 5-amino-1,2,4-thiadiazole, 5-amino-1,2,3-triazole, 2-amino-1,3,4-triazole, 2(5) aminoimidazole, 3-aminopyridine, 2(3) aminothiophene, 2(3) aminobenzo[b]thiophene, 2-aminothieno[3,2-b]thiophene, 3-aminothieno[2,3-c]isothiazole, 3-amino-7-benz- 2,1-isothiazole, 3-aminobenzothienoisothiazole, 3-aminoisothiazole[3,4-d]pyrimidine, 5-amino- 1,2,3-triazole, 3(4) aminophthalimide and 5(6) amino-1,2-benzisothiazolon-1,1-dioxide and Y_1 is the residue of a bis coupling component selected from the group consisting of the classes of anilines, 1,2-dihydroquinolines, 1,2,3,4-tetrahydroquinolines, benzomorpholines (3,4-dihydro-2H-1,4-benzoxazines), 3-cyano-6-hydroxy-2-pyridones, 2,6-diaminopyridines, 2,3-dihydroindoles, naphthylamines, 2-aminothiazoles, or a combination of these, with the provision that each R_6 group contain one acidic group selected from the group consisting of $-CO_2H$, -SH, -OH attached to an aromatic ring, -NHCONH-, $-SO_2NHCO-$, $-SO_2NHSO_2-$, 1 (H)-1,2,4-triazol-3-yl-, imidazolyl, benzimidazoyl, pyrazolyl and $-SO_2H$ attached to aromatic ring.

76. The bis-azo compounds of claim 75 wherein each R_6 group contains one carboxy ($-CO_2H$) group.

77. The bis-azo compounds of claim 75 wherein Y_1 has the formula $Z_1-L_1-Z_2$ wherein Z_1 and Z_2 are independently selected from the group consisting of:

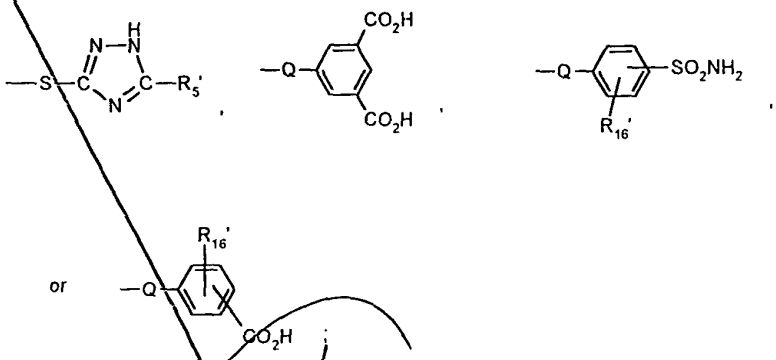


or

;

wherein L_1 is bonded to the nitrogen atom of Z_1 and Z_2; wherein L_1 is selected from the group consisting of C_2-C_{12} alkylene, C_3-C_8 cycloalkylene, arylene, C_1-C_4 alkylene-C_3-C_8 cycloalkylene- C_1-C_4 alkylene, C_1-C_4 alkylene-arylene-C_1-C_4 alkylene, C_2-C_4 alkylene-O-arylene-O- C_2-C_4 alkylene, (C_2-C_4 alkylene O)$_{1-3}$ C_2-C_4 alkylene, C_2-C_4 alkylene- S- C_2-C_4 alkylene, C_2-C_4 alkylene-SO_2- C_2-C_4 alkylene, C_2-C_4 alkylene-N(SO_2 C_1-C_6 alkyl)- C_2-C_4 alkylene, C_2-C_4 alkylene-N(SO_2 aryl)- C_2-C_4- alkylene, C_2-C_4 alkylene-OCO_2- C_2-C_4 alkylene, C_2-C_4 alkylene- O_2C-arylene-CO_2- C_2-C_4 alkylene, C_2-C_4 alkylene-O_2C- C_1-C_{12} alkylene-CO_2- C_2-C_4 alkylene, C_2-C_4 alkylene-O_2C- C_3-C_8 cycloalkylene-CO_2- C_2-C_4 alkylene, C_2-C_4 alkylene-NHCO- C_2-C_4 alkylene and C_2-C_4 alkylene-$NHSO_2$-C_2-C_4 alkylene; R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, -O C_2-C_6 alkylene-OH, O C_2-C_6 alkylene- C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene- C_1-C_6 alkanoyloxy, halogen, carboxy, C_1-C_6 alkoxycarbonyl, trifluoromethyl,$NHCOR_{24}$, $NHCO_2R_{24}$, $NHCON(R_{24})R_{25}$, and $NHSO_2R_{25}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl, R_{25} is selected from the group consisting of C_1-C_{1}

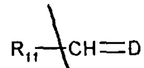
alkyl, C_3-C_8 cycloalkyl or aryl wherein each C_1-C_{10} alkyl group in R_{24} and R_{25} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2H, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido, C_1-C_6 alkoxy,



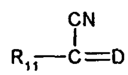
or

wherein R_5', R_{16}' and Q are as defined in clain 63; R_{18} is selected from the group consisting of hydrogen, a group selected from the group consisting of unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl and aryl; R_{20}, R_{21} and R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, heteroaryl or aryl.

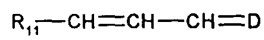
78. The diacidic methine, arylidene, polymethine, azamethine, 3-aryl-2,5-dioxypyrroline, 3-aryl-5-dicyanomethylene -2-oxypyrroline and aryl isoindoline corresponding to formulae VIII, VIIIa, VIIIb, IX, X, XI and XII, respectively:



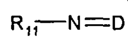
VIII



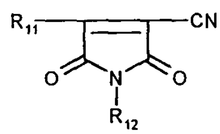
VIII a



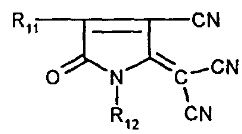
VIII b



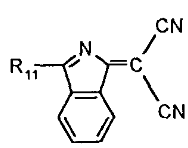
IX



X



XI

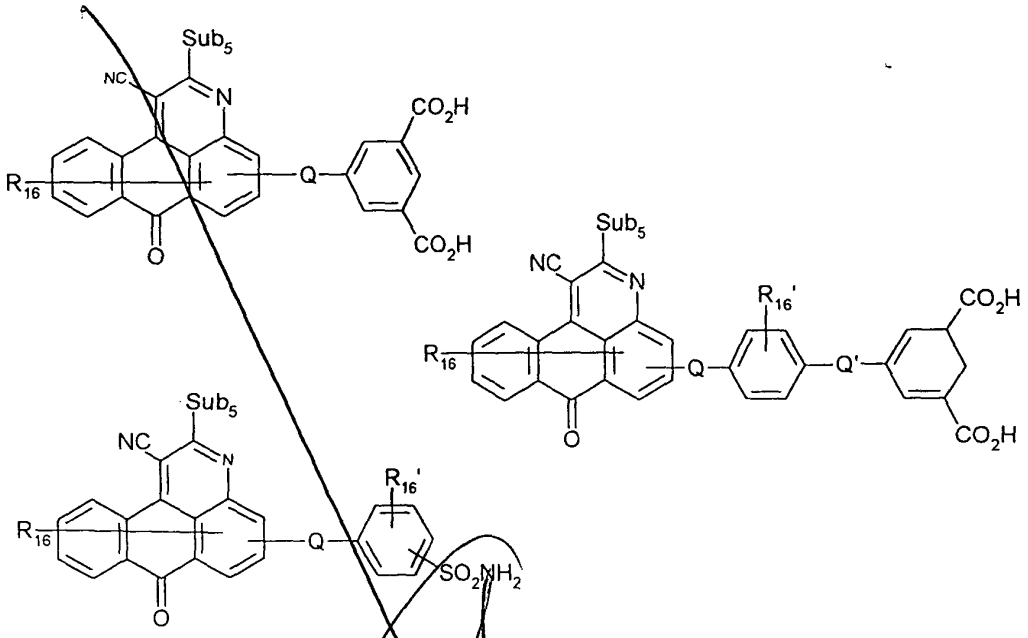


XII

wherein R_{11} is the residue of an aniline, 1-naphthylamine, 1,2-dihydroquinoline, 1,2,3,4-tetrahydroquinoline, 1,3,3-trimethyl- 2-methyleneindole, 1,3-dihydro-2-methylene-1,1,3-trimethyl-2H-benz[e]indole, imidazo [2,1-b] thiazole, benzomorpholine (3,4-dihydro-2H-1,4,benzoxazine), indole, 2,3-dihydroindole, 2-aminothiazole, julolidine (2,3,6,7-tetrahydro-1H, 5H- benz [ij] quinolizine, 1-oxajulolidine, 4H-pyrrolo [3,2,1-ij]-quinoline, phenol, naphthol, thiophenol, pyrrole, pyrazole, furan, thiophene, carbazole, phenothiazine or phenoxazine compound; R_{12} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 alkenyl, C_3-C_8-alkynyl, C_3-C_8 cycloalkyl, aryl, $(CH_2CH_2O)_{1-3}$ R_{13} and C_1-C_4 alkylene- C_3-C_8 cycloalkylene, wherein the C_1-C_6 alkyl groups may be substituted by at least one group selected from the group consisting of carboxy, C_1-C_6 carbalkoxy, C_1-C_6 alkanoyloxy, cyano, hydroxy, chlorine, fluorine, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl or aryl; R_{13} is selected from the group consisting of hydrogen, C_1-C_6 alkoxy or C_1-C_6 alkanoyloxy; wherein D is the residue of an active

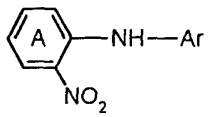
methylene compound selected from the group consisting of malononitrile, α-cyanoacetic acid esters, malonic acid esters, α-cyanacetic acid amides, α-C_1-C_6 alkylsulfonylacetonitriles, α-arylsulfonylacetonitriles, α-C_1-C_6 alkanoylacetonitriles, α-aroylacetonitriles, α-heteroarylacetonitriles, bis(heteroaryl)methanes, 1,3-indanediones, 2-furanones, benzo-2-furanones, naphtho-2-furanones, 2-indolones, 3-cyano-1,6-dihydro-4-methyl-2,6-dioxy (2H)-pyridines, benzo (b) thieno-3-ylidene propane dinitrile-5,5-dioxides, 1,3-bis (dicyanomethylene) indanes, barbituric acid, 5-pyrazolones, dimedone, 3-oxo-2,3-dihydro-1-benzothiophene-1,1-dioxides or aryl-$C(CH_3)C=C(CN)_2$, with the proviso that two acidic functional groups selected from the group consisting of $-CO_2H$, -SH, -OH attached to aromatic ring, -CONHCO-, $-SO_2NHCO-$, $-SO_2NHSO_2-$, 1(H) -1,2,4,-triazol-3-yl, imidazolyl, benzimidazolyl, pyrazolyl and SO_2H attached to aromatic ring be present or one diacidic sulfamoyl ($-SO_2NH_2$) be present.

79. The diacidic anthrapyridine compounds having the structures:



wherein Sub_5 in a substituent selected from the group consisting of -N (C_1-C_{10} alkyl)$_2$, -N (C_1-C_{10} alkyl) aryl, -N (C_1-C_{10} alkyl) C_3-C_8 cycloalkyl, morpholino and piperidino; Q and Q' are selected from the group consisting of -NH-, -O-, -S- and -SO_2-, R_{16}' is selected from the group consisting of hydrogen, C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy.

80. The nitroarylamine compounds having the structure:

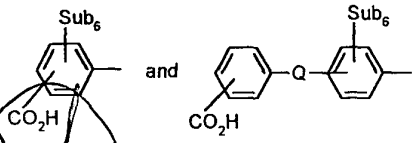


wherein ring A may be substituted with one or more groups selected from the group consisting of halogen, -SO_2N(C_1-C_6 alkyl)$_2$, -CON (C_1-C_6 alkyl)$_2$, SO_2 C_1-C_6 alkyl, SO_2 aryl, C_1-C_6 alkyl, C_1-C_6 alkoxy, carboxy, and nitro; Ar is phthalimid-3 (or 4)-yl, phenyl, or 2-thienyl, or these substituted with one or more groups selected from the

group consisting of halogen, C_1-C_6 alkyl, C_1-C_6 alkoxy, 1(H)-1,2,4,-triazolyl-3-ylthio, carboxy, or hydroxy, with the provision that two acidic groups be present.

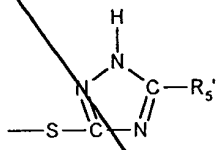
81. The nitroarylamine compounds of claim 80 wherein two carboxy groups are present on Ar or ring A or one carboxy is present on each of Ar and ring A.

82. The diacidic compounds of claim 72, having the formula R_6-N=N-Z, wherein R_6 is selected from the group consisting of



wherein Sub_6 is selected from the group consisting of hydrogen, one to four groups selected from C_1-C_{10} alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, halogen, , C_1-C_6 alkoxycarbonyl, formyl, C_1-C_6 alkanoyl, C_1-C_6 alkanoyloxy, dicyanovinyl, C_3- C_8-cycloalkanoyl, thiocyano, trifluroacetyl, cyano, carbamoyl, -CONH C_1-C_6 alkyl, CONHaryl, $CON(C_1\text{-}C_6\ alkyl)_2$, $SO_2N(C_1\text{-}C_6\ alkyl)_2$, CONH C_3-C_8 cycloalkyl, aryl, aroyl, $-N(C_1\text{-}C_6\ alkyl)SO_2$ C_1-C_6 alkyl, NHCO C_1-C_6 alkyl, NHCO C_3-C_8 cycloalkyl, NHCOaryl, $NHCO_2$ C_1-C_6 alkyl, NHCONH C_1-C_6 alkyl, NHCONHaryl, $N(C_1\text{-}C_6$ alkyl)aryl, arylazo, heteroaryl, aryloxy, arylthio, C_3-C_8 cycloalkoxy, heteroarylazo, heteroarylthio, arylsulfonyl, tricyanovinyl, aryloxysulfonyl, C_1-C_6 alkylsulfonyl, trifluoromethyl, fluorosulfonyl, trifluoromethylsulfonyl, thiocyano, nitro and CH=D, wherein D is the residue of an active methylene compound selected from the group consisting of malononitrile, α-cyanoacetic acid esters, malonic acid esters, α-cyanacetic acid amides, α-C_1-C_6 alkylsulfonylacetonitriles, α-arylsulfonylacetonitriles, α-C_1-C_6 alkanoylacetonitriles, α-aroylacetonitriles, α-heteroarylacetonitriles, bis(heteroaryl)methanes, 1,3-

indanediones, 2-furanones, benzo-2-furanones, naphtho-2-furanones, 2-indolones, 3-cyano-1,6-dihydro-4-methyl-2,6-dioxy (2H)-pyridines, benzo (b) thieno-3-ylidene propane dinitrile-5,5-dioxides, 1,3-bis (dicyanomethylene) indanes, barbituric acid, 5-pyrazolones, dimedone, 3-oxo-2,3-dihydro-1-benzothiophene-1,1-dioxides and aryl-$C(CH_3)C=C(CN)_2$; with the provision that one acidic group selected from the group consisting of carboxy,



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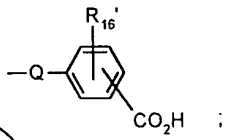

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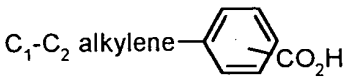
be present on either R_{17}, R_{18}, R_{19} or R_{24}; Q is selected from the group consisting of -O-, -S, and $-SO_2-$.

83. The compounds of claim 82 wherein R_{18} is selected from the group consisting of C_1-C_{10} alkylene-CO_2H,



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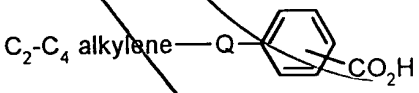

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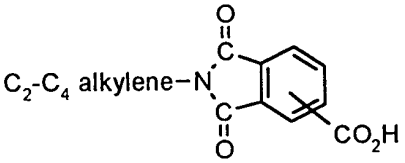

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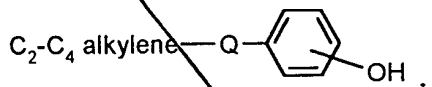

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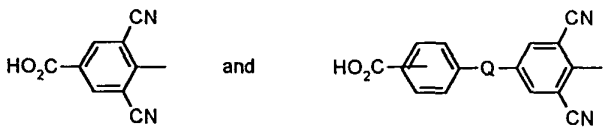
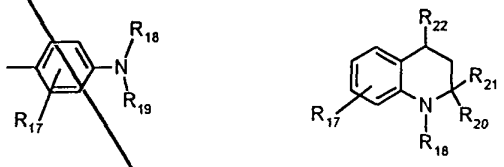
84. The diacidic compounds of claim 82 wherein R_6 is selected from the group consisting of



and Z is selected from



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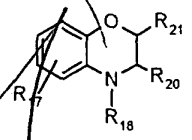
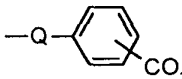
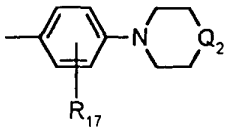


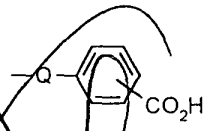
wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, halogen, $NHCOR_{24}$, $NHCO_2R_{24}$ and $NHCONHR_{24}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl and aryl; wherein each C_1-C_{10} alkyl group in R_{24} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, carboxy, aryl, aryloxy, arythio, CO_2 C_1-C_6 succinimido, C_1-C_6 alkyoxy and alkyl, cyano, hydroxy,



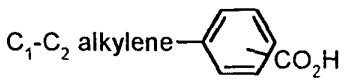
; R_{18} and R_{19} are independently selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 alkyl, C_3-C_8 alkenyl and aryl or R_{18} and R_{19} may be combined with another element to which they are attached to from a radical



wherein Q_2 is selected from the group consisting of -O-, -S-, $-SO_2$, -CO-, $-CO_2$, -N (COC_1 -C_6 alkyl)-, -N (SO_2 C_1 -C_6 alkyl)-, -N (COaryl)-, and -N (SO_2 aryl)-; R_{20}, R_{21}, and R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; with the provision that either R_{17} contain one acidic group selected from the group consisting of carboxy and



with the groups R_{18} and R_{19} being void of acidic groups or R_{17} may be void of acidic groups and R_{18} be selected from the group consisting of C_1-C_{10} alkylene $-CO_2H$,



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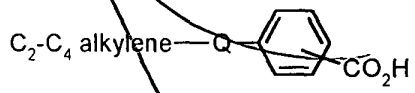

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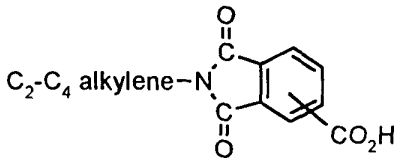

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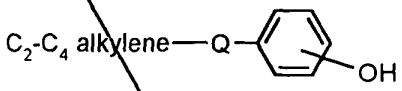
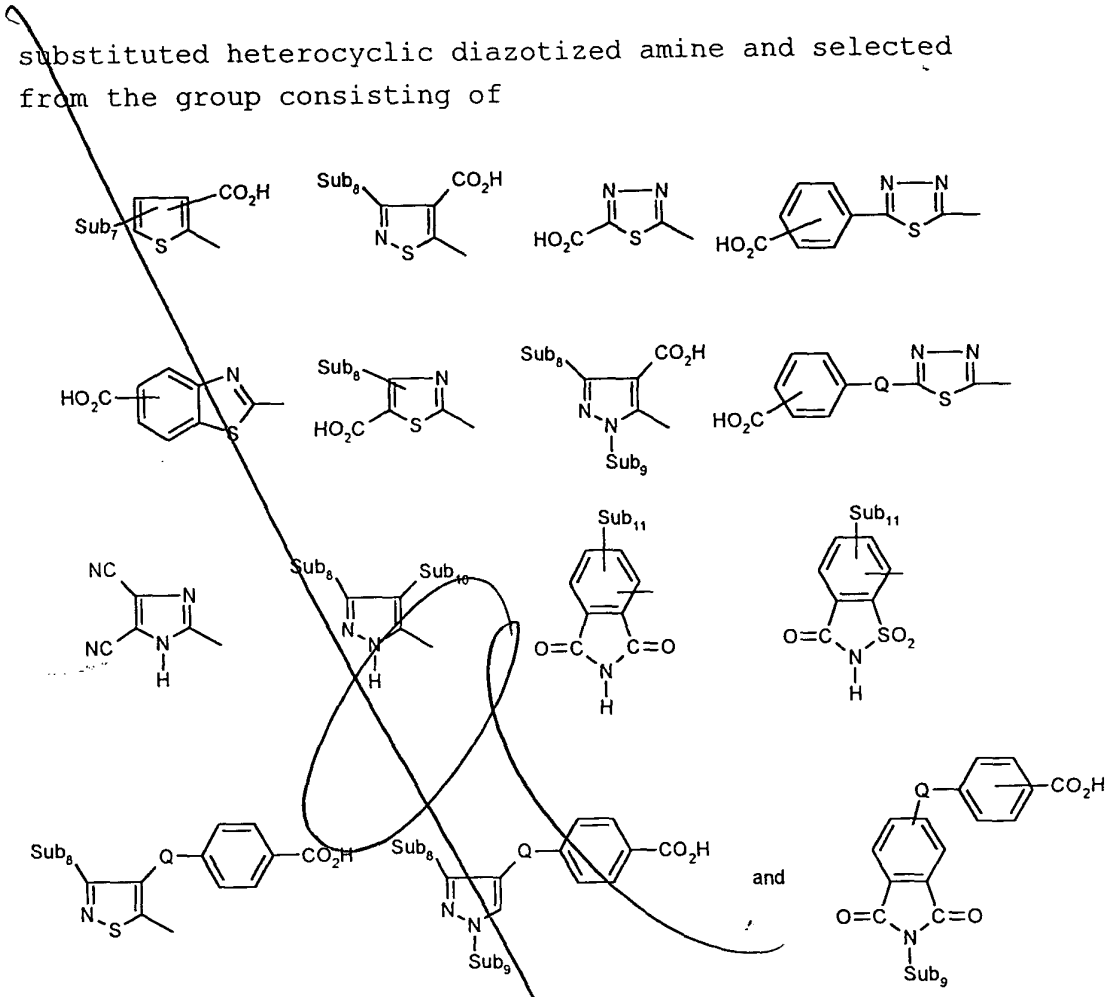


;

wherein Q is selected from the group consisting of - O -, - S -, and - SO_2 -; with the final provision that only two carboxy groups be present.

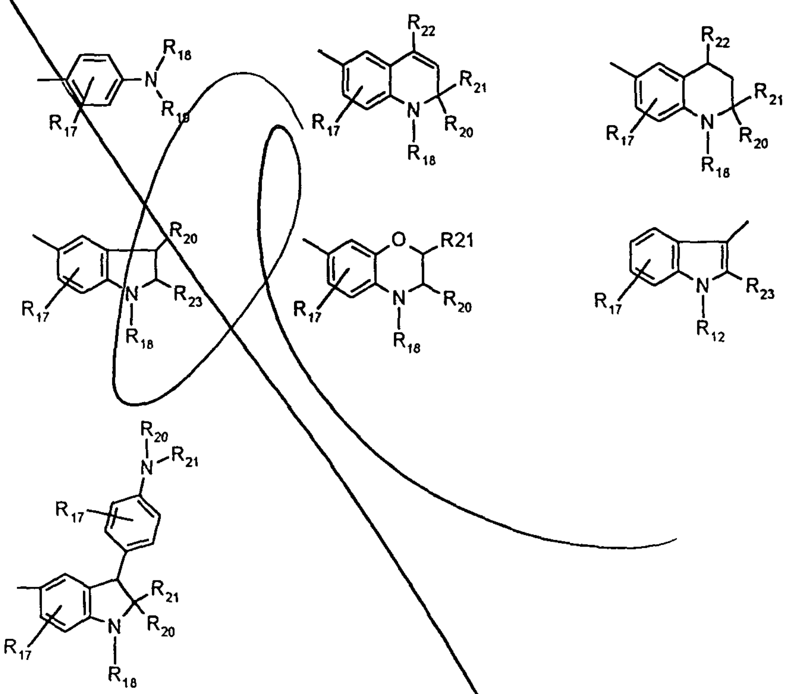
85. The diacidic compounds of claim 61 having the formula R_6-N=N-Z, wherein R_6 is the residue of a

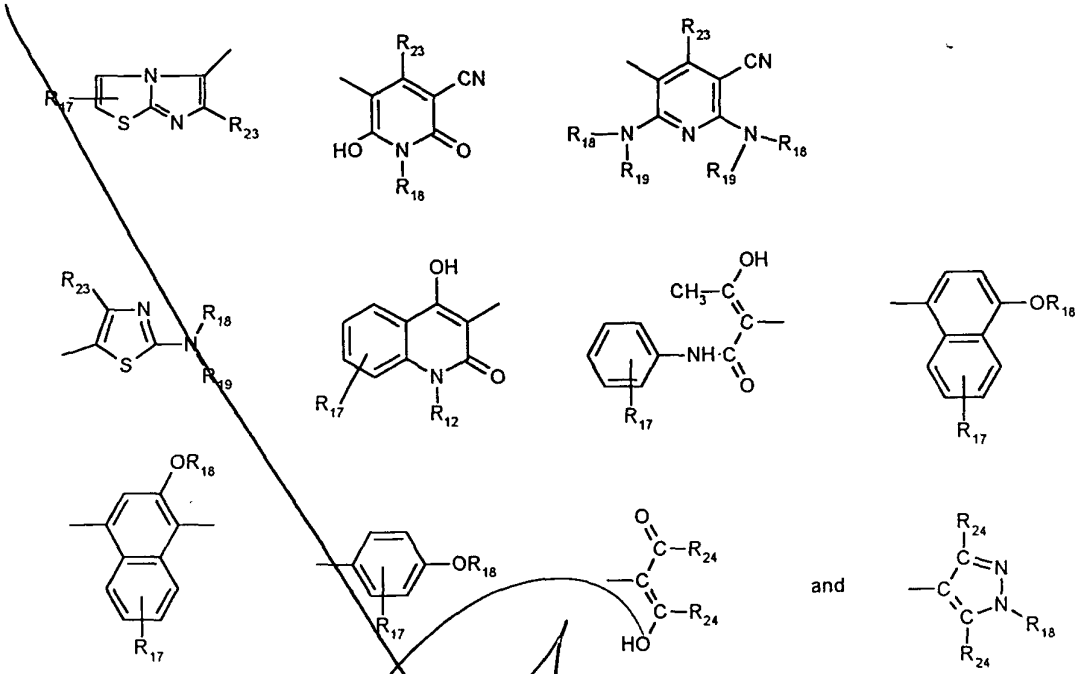
substituted heterocyclic diazotized amine and selected from the group consisting of



wherein Sub_7 is one or more substituent selected from the group consisting of hydrogen, halogen, C_1-C_6 alkyl, aryl, heteroaryl, C_1-C_6 alkanoyl, CONH C_1-C_6 alkyl, SO_2 C_1-C_6 alkyl, SO_2 aryl, C_1-C_6 alkoxycarbonyl, aroyl, cyano, formyl and nitro; Sub_8 is selected from the group consisting of hydrogen, halogen, C_1-C_6 alkyl, aryl and heteroaryl; Sub_9 is selected from the group consisting of C_1-C_6 alkyl C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, and aryl; Sub_{10} is selected from the group consisting of cyano, nitro, C_1-C_6 alkylsulfonyl, arythio, arylsulfonyl and C_1-C_6 alkoxycarbonyl; Sub_{11} is hydrogen one or more substituents selected from the group consisting of C_1-C_6 alkyl, cyano, nitro, halogen, arylthio,

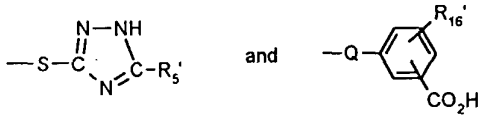
heteroarylthio, arylsulfonyl, aryloxy and C_1-C_6 alkylsulfonyl; Q is selected from the group consisting of -O-, -S- and $-SO_2-$; wherein Z is a coupling component selected from the group consisting of





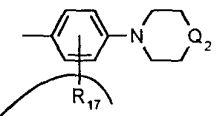
and

wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, -O C_2-C_6 alkylene-OH, O C_2-C_6 alkylene- C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene- C_1-C_6 alkanoyloxy, halogen, C_1-C_6 alkoxycarbonyl, trifluoromethyl, $NHCOR_{24}$, $NHCO_2R_{24}$, and $NHCONHR_{24}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl and aryl; wherein each C_1-C_{10} alkyl group in R_{24} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido, C_1-C_6 alkoxy,

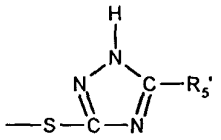


and

wherein R_5' is selected from the group consisting of hydrogen, C_1-C_6 alkyl and aryl; R_{16}' is selected from the group consisting of hydrogen, one or two groups selected from C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy; R_{18} and R_{19} are independently selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl and aryl or R_{18} and R_{19} may be combined with another element to which they are attached to form a radical Z having the formula



wherein Q_2 is selected from the group consisting of a covalent bond, -O-, -S-, $-SO_2$-, -CO-, $-CO_2$-, -N-(C_1-C_6 alkyl)-, -N(CO C_1-C_6 alkyl)-, -N(SO_2 C_1-C_6 alkyl)-, -N(CO aryl)-, or-N(SO_2 aryl); R_{20}, R_{21} and R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, heteroaryl or aryl; with the provision that one acidic group selected from the group consisting of carboxy,



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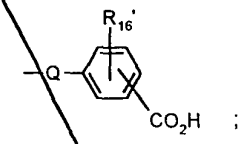
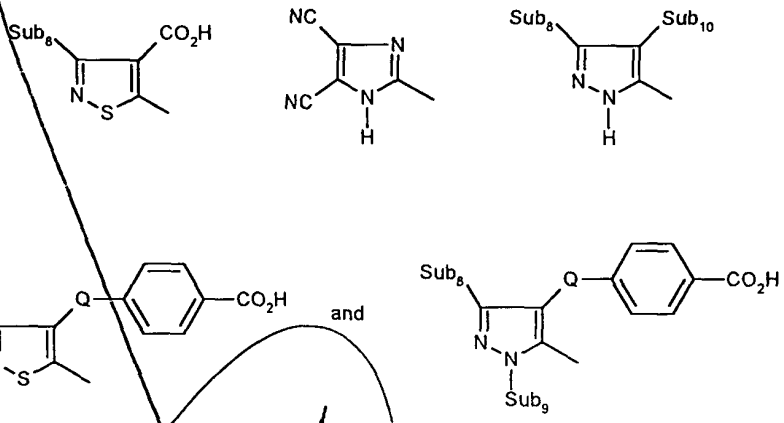


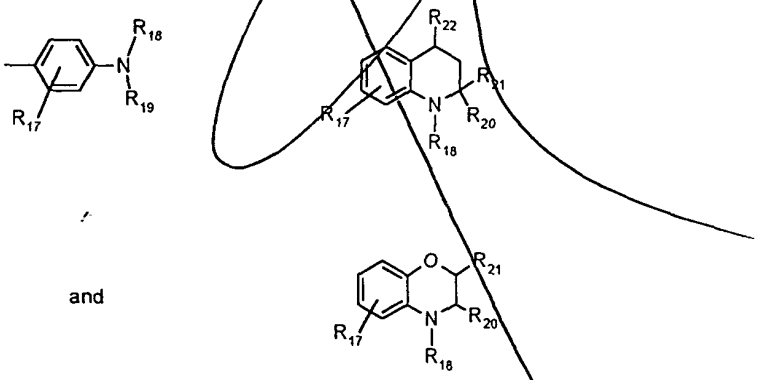
;

be present on either R_{17} , R_{18}, R_{19} or R_{24}; Q is selected from the group consisting of -O- , -S, and $-SO_2$-; with the provision that R_6 and Z each contain one acidic group.

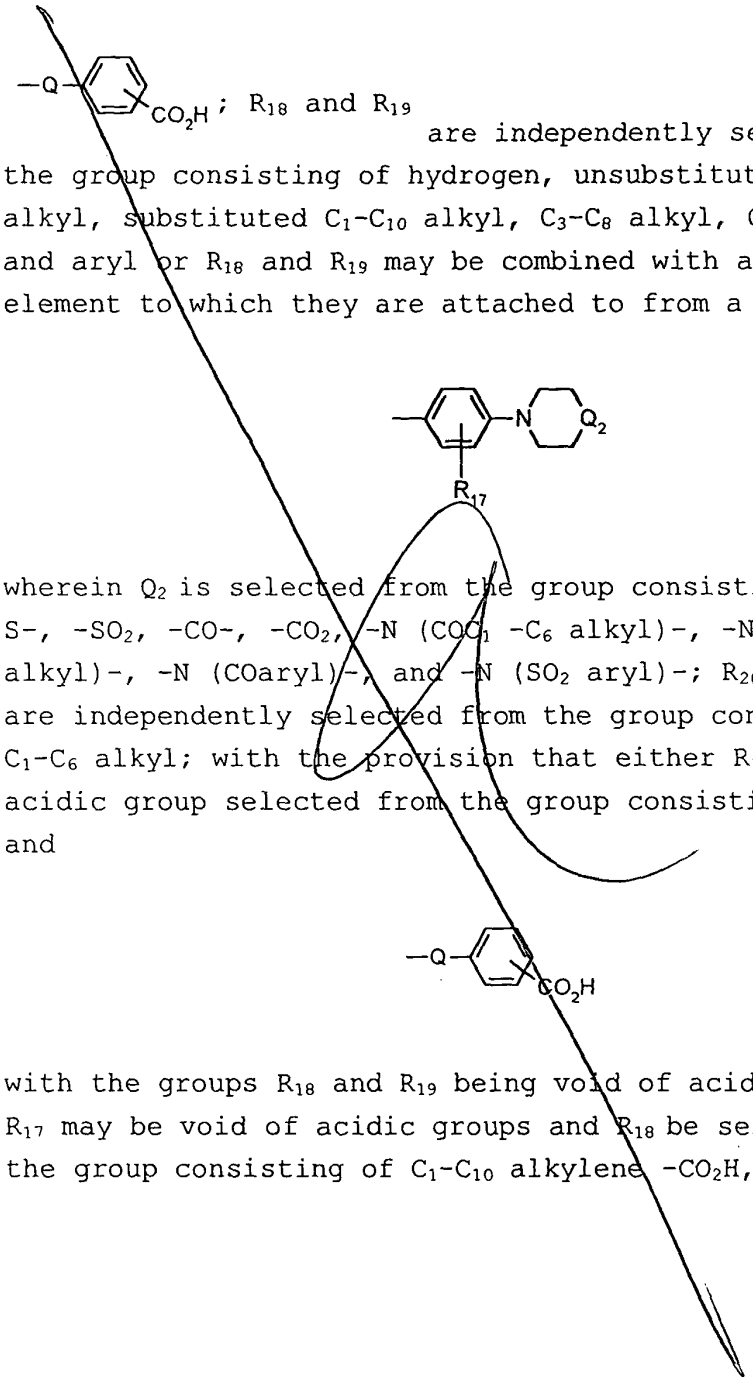
86. The diacidic compounds of claim 85 having the formula R_6-N=N-Z, wherein R_6 is selected from the group consisting of



and Z is selected from the group consisting of



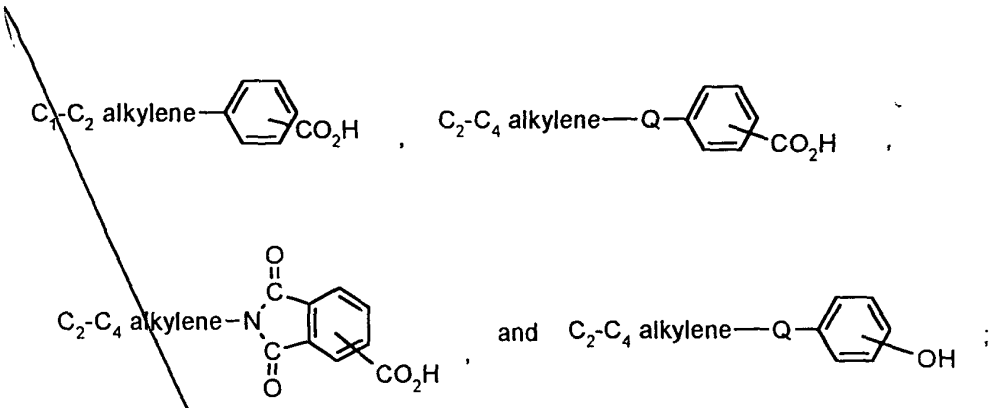
wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, halogen, $NHCOR_{24}$, $NHCO_2R_{24}$ and $NHCONHR_{24}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl and aryl; wherein each C_1-C_{10} alkyl group in R_{24} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, carboxy, aryl, aryloxy, arythio, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido, C_1-C_6 alkyoxy and



; R_{18} and R_{19} are independently selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 alkyl, C_3-C_8 alkenyl and aryl or R_{18} and R_{19} may be combined with another element to which they are attached to from a radical

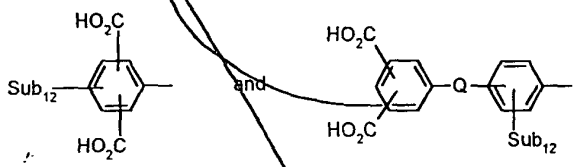
wherein Q_2 is selected from the group consisting of -O-, -S-, $-SO_2$, -CO-, $-CO_2$, -N (COC_1 -C_6 alkyl)-, -N (SO_2 C_1 -C_6 alkyl)-, -N (COaryl)-, and -N (SO_2 aryl)-; R_{20}, R_{21}, and R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; with the provision that either R_{17} contain one acidic group selected from the group consisting of carboxy and

with the groups R_{18} and R_{19} being void of acidic groups or R_{17} may be void of acidic groups and R_{18} be selected from the group consisting of C_1-C_{10} alkylene $-CO_2H$,

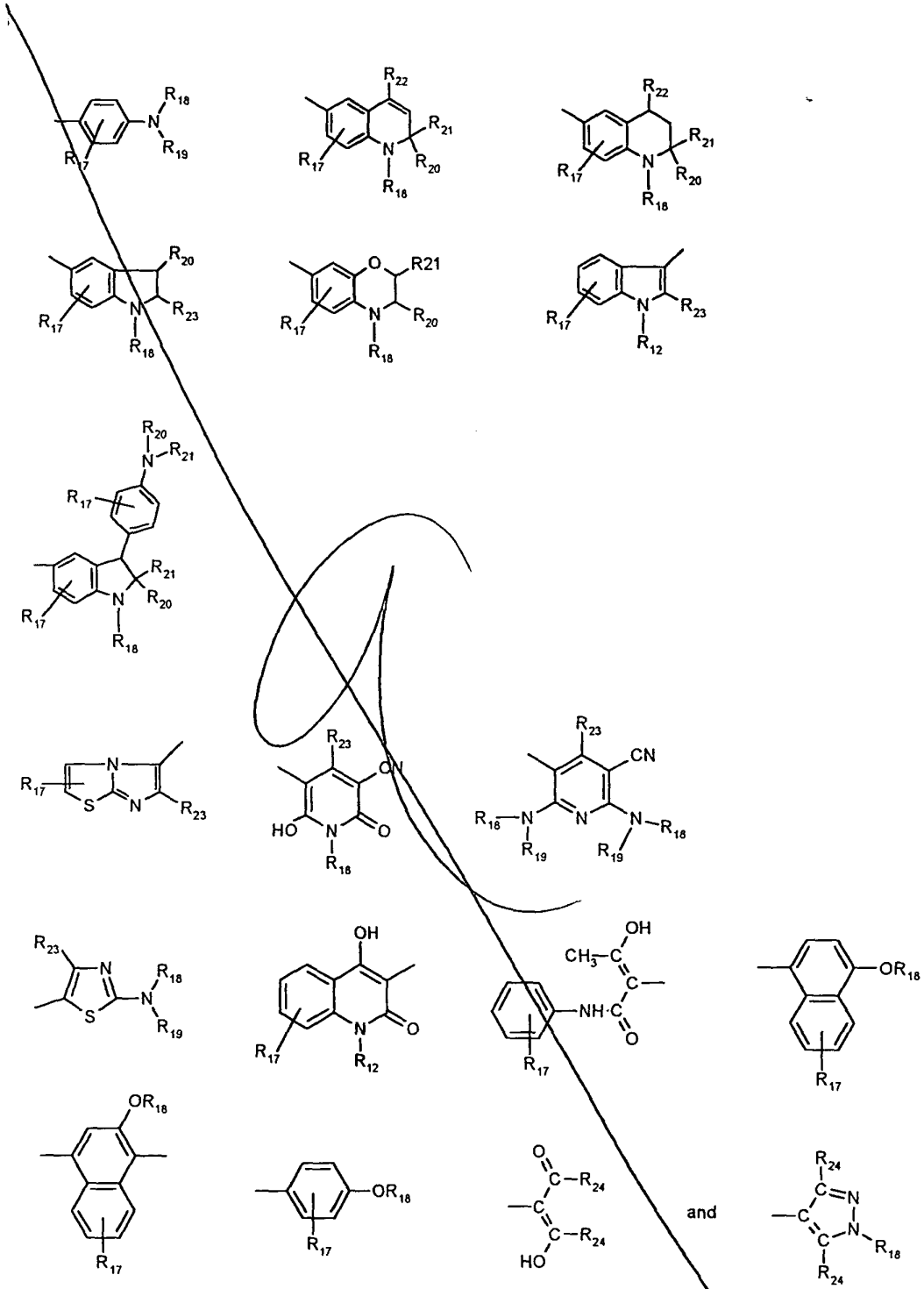


wherein Q is selected from the group consisting of - O -, - S -, and - SO_2 -; with the final provision that only two carboxy groups be present.

87. The diacidic compounds of claim 71 having the formula R_6-N=N-Z, wherein R_6 is the residue of a diazotized aromatic amine and is selected from the group consisting of

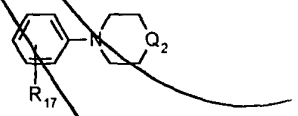


wherein Sub_{12} is one or more groups selected from the group consisting of hydrogen, C_1-C_6 alkyl, cyano, nitro, C_1-C_6 alkylthio, C_1-C_6 alkylsulfonyl, aryl, heteroaryl, arylthio, arylsulfonyl, halogen, trifluoromethyl, alkanoyl, aroyl, formyl, NHCO aryl, NHCO C_1-C_6 alkyl, C_1-C_6 alkoxycarbonyl, C_1-C_6 alkoxy and - SO_2N (C_1-C_6 alkyl)$_2$; Q is selected from the group consisting of -O-, -S-, -SO_2-, -CONH- and -SO_2N (C_1-C_6 alkyl)-; Z is selected from the group consisting of



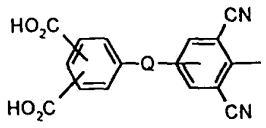
wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6

alkoxy, C_1-C_6 alkylthio, -O- C_2-C_6 alkylene - OH, O-C_2-C_6 alkylene- C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene - C_1-C_6 alkanoyloxy, halogen, C_1-C_6 alkoxycarbonyl, trifluoromethyl, $NHCOR_{24}$, $NHCO_2R_{24}$ and $NHCON(R_{24})$ R_{25}, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl and aryl; R_{25} is selected from the group consisting of C_1-C_{10} alkyl, C_3-C_8 cycloalkyl and aryl; wherein each C_1-C_{10} alkyl group in R_{24} and R_{25} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido and C_1-C_6 alkoxy; R_{18} and R_{19} are selected from the group consisting of hydrogen C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl, and aryl; R_{18} and R_{19} in combination may be combined with another element to which they are attached to form a radical Z having the formula

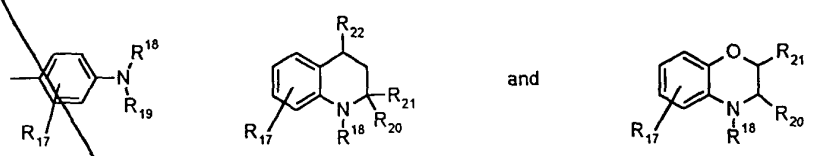


wherein Q_2 is selected from the group consisting of a covalent bond, -O-, $-SO_2$-, -S-, -CO-, - CO_2 -, - N(COC_1-C_6 alkyl)-, -N(SO_2 C_1-C_6 alkyl)-, -N(CO aryl)-, -N(SO_2 aryl)-; R_{20}, R_{21} and R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, heteroaryl or aryl; with the provision that no acidic groups be present on Z.

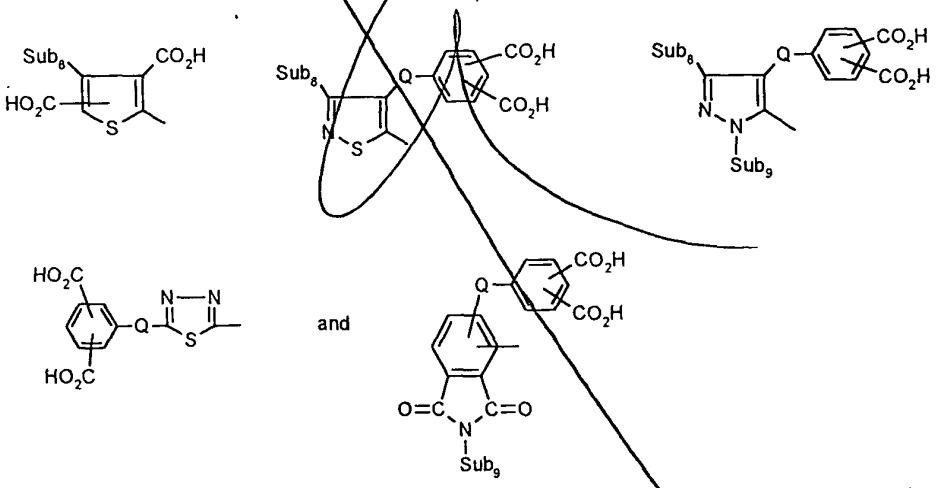
88. The diacidic compounds of claim 87 wherein R_6 has the structure



and Z is selected from

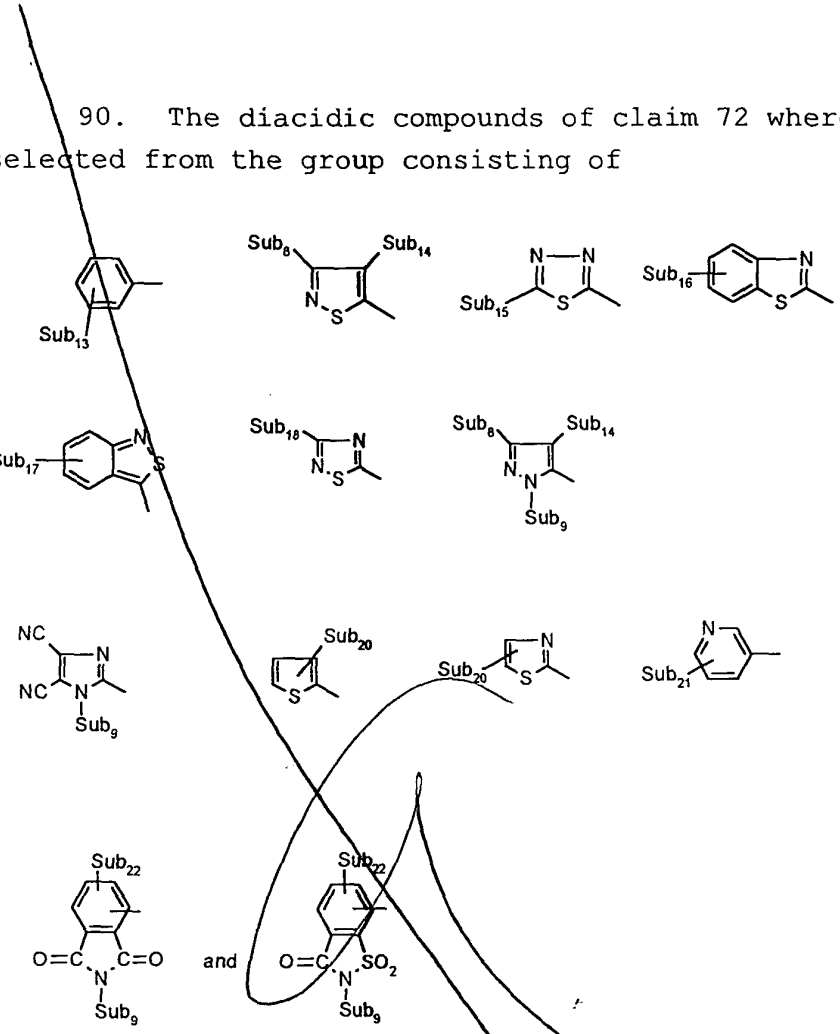


89. The diacidic compound of claim 72 wherein R_6 is residue of a diazotized heterocyclic amine and is selected from the group consisting of



wherein Sub_8 is selected from the group consisting of hydrogen, C_1-C_6 alkyl, halogen, aryl and heteroaryl; Sub_9 is selected from the group consisting of C_1-C_8 alkyl C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, and aryl; Q is selected from the group consisting of -O-, -S- and $-SO_2-$; with the provision that no acidic groups be present on Z.

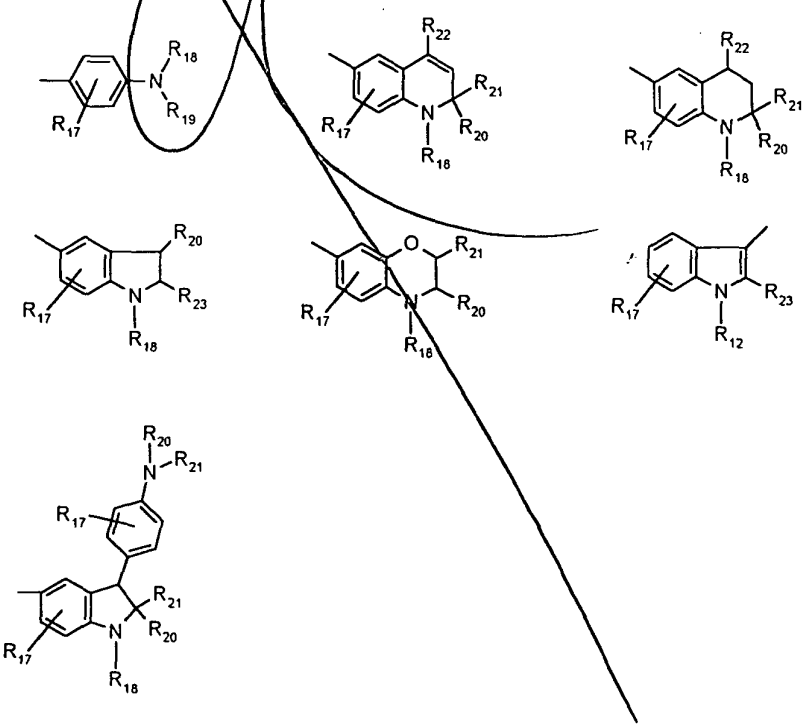
90. The diacidic compounds of claim 72 wherein R_6 is selected from the group consisting of

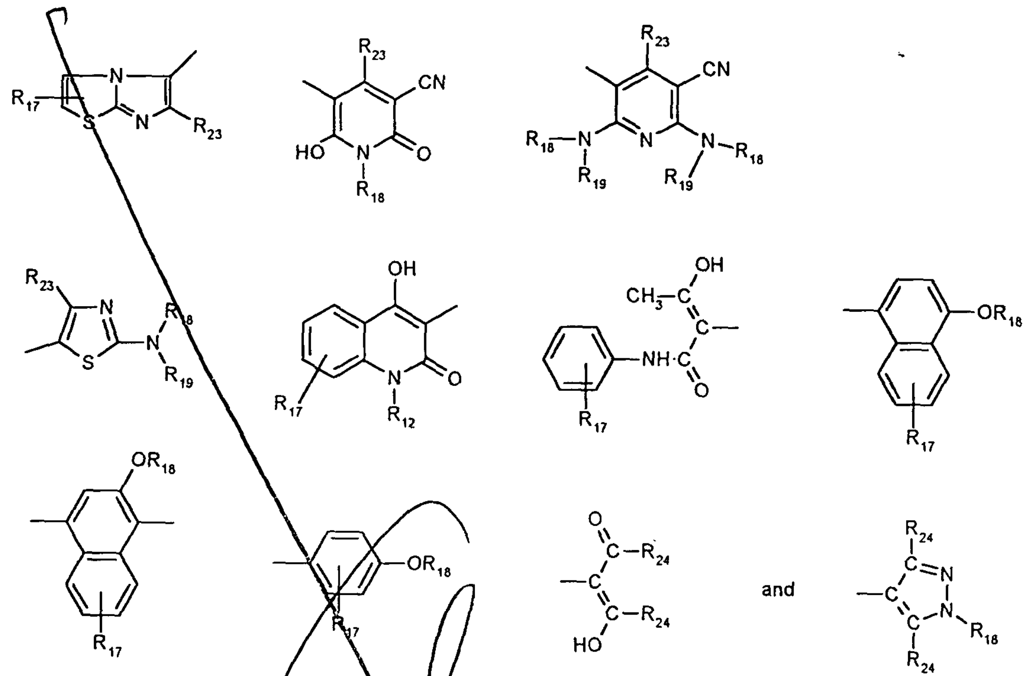


wherein Sub_8 is selected from the group consisting of hydrogen, C_1-C_6 alkyl, heteroaryl and aryl; Sub_9 is selected from the group consisting of C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl and aryl; Sub_{13} is selected from the group consisting of hydrogen, one or more groups selected from C_1-C_{10} alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, halogen, , C_1-C_6 alkoxycarbonyl, formyl, C_1-C_6 alkanoyl, C_1-C_6 alkanoyloxy, dicyanovinyl, C_3- C_8-cycloalkanoyl, thiocyano, trifluroacetyl, cyano, carbamoyl, -CONH C_1-C_6 alkyl, CONHaryl, CON(C_1-C_6 alkyl)$_2$, SO_2N(C_1-C_6 alkyl)$_2$, CONH C_3-C_8 cycloalkyl, aryl, aroyl, -N(C_1-C_6 alkyl)SO_2 C_1-C_6 alkyl, NHCO C_1-C_6 alkyl, NHCO C_3-C_8 cycloalkyl, NHCOaryl, $NHCO_2$ C_1-C_6 alkyl, NHCONH C_1-C_6 alkyl, NHCONHaryl, N(C_1-C_6

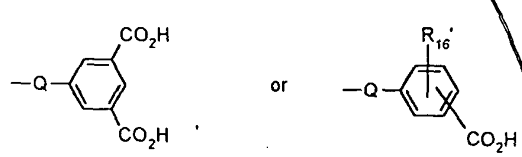
alkyl)aryl, arylazo, heteroaryl, aryloxy, arylthio, C_3-C_8 cycloalkoxy, heteroarylazo, heteroarylthio, arylsulfonyl, tricyanovinyl, aryloxysulfonyl, C_1-C_6 alkylsulfonyl, trifluoromethyl, fluorosulfonyl, trifluoromethylsulfonyl, thiocyano, nitro and CH=D, wherein D is the residue of an active methylene compound selected from the group consisting of malononitrile, α-cyanoacetic acid esters, malonic acid esters, α-cyanacetic acid amides, α-C_1-C_6 alkylsulfonylacetonitriles, α-arylsulfonylacetonitriles, α-C_1-C_6 alkanoylacetonitriles, α-aroylacetonitriles, α-heteroarylacetonitriles, bis(heteroaryl)methanes, 1,3-indanediones, 2-furanones, benzo-2-furanones, naphtho-2-furanones, 2-indolones, 3-cyano-1,6-dihydro-4-methyl-2,6-dioxy (2H)-pyridines, benzo (b) thieno-3-ylidene propane dinitrile-5,5-dioxides, 1,3-bis (dicyanomethylene) indanes, barbituric acid, 5-pyrazolones, dimedone, 3-oxo-2,3-dihydro-1-benzothiophene-1,1-dioxides and aryl-$C(CH_3)C{=}C(CN)_2$; Sub_{14} is selected from the group consisting of hydrogen, halogen, cyano, C_1-C_6 alkylthio, arylthio, C_1-C_6 alkoxycarbonyl, nitro, heteroarylthio, C_1-C_6 alkylsulfonyl, arylsulfonyl, and aryloxy; Sub_{15} is selected from the group consisting of hydrogen, C_1-C_6 alkythio, C_1-C_6 alkysulfonyl, aryl, arylazo, -CH=D, cyano, C_1-C_6 alkysulfonyl, aryl, heteroaryl, arylthio, arylsulfonyl, C_1-C_6 alkoxy, trifluoromethyl and C_1-C_6 alkoxycarbonyl; Sub_{16} is selected from the group consisting of hydrogen, one or two groups selected from halogen, C_1-C_6 alkylsulfonyl, nitro, cyano, C_1-C_6 alkoxycarbonyl, thiocyano and C_1-C_6 alkylthio; Sub_{17} is selected from the group consisting of hydrogen, one or two groups selected from C_1-C_6 alkyl, halogen, nitro and SO_2N (C_1-C_6 alkyl)$_2$; Sub_{18} is selected from the group consisting of hydrogen, aryl, C_1-C_6 alkylthio, C_1-C_6 alkylsulfonyl and heteroaryl; Sub_{19} is selected from the group consisting of hydrogen, one or more groups selected from C_1-C_6 alkyl, cyano, nitro, aryl, heteroaryl, arylazo, -CH=D, C_1-C_6 alkoxycarbonyl,

C_1-C_6 alkylsulfonyl, arylsulfonyl, CONH C_1-C_6 alkyl, C_1-C_6 alkanoyl, aroyl, halogen, formyl and heteroarylazo; Sub_{20} is selected from the group consisting of hydrogen, one or two groups selected from C_1-C_6 alkyl, aryl, cyano, nitro, C_1-C_6 alkoxycarbonyl, C_1-C_6 alkysulfonyl, arylazo, heteroarylazo, heteroaryl, SO_2N (C_1-C_6 alkyl)$_2$, formyl, and -CH=D; Sub_{21} is selected from the group consisting of hydrogen, one to three groups selected from C_1-C_6 alkyl, halogen, cyano, C_1-C_6 alkylthio, C_1-C_6 alkylsulfonyl, arylsulfonyl, arylthio, heteroarylthio, C_1-C_6 alkoxy and aryloxy; Sub_{22} is selected from the group consisting of hydrogen, one to three groups selected from C_1-C_6 alkyl, halogen, C_1-C_6 alkylsulfonyl, nitro, cyano, arylthio and heteroarylthio; Z is selected from the group consisting of

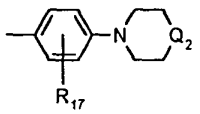




wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, -O C_2-C_6 alkylene-OH, O C_2-C_6 alkylene-C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene-C_1-C_6 alkanoyloxy, halogen, carboxy, C_1-C_6 alkoxycarbonyl, trifluoromethyl, $NHCOR_{24}$, $NHCO_2R_{24}$, $NHCON(R_{24})R_{25}$, and $NHSO_2R_{25}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl, R_{25} is selected from the group consisting of C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl wherein each C_1-C_{10} alkyl group in R_{24} and R_{25} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2H, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido, C_1-C_6 alkoxy,

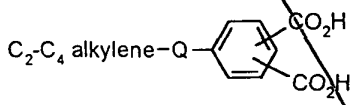


wherein R_5', R_{16}' and Q are as defined in claim 63; R_{18} and R_{19} are independently selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl and aryl or R_{18} and R_{19} may be combined with another element to which they are attached to form a radical Z having the formula

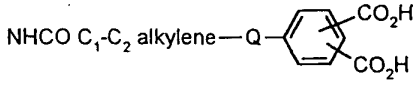


wherein Q_2 is selected from the group consisting of a covalent bond, -O-, -S-, $-SO_2-$, -CO-, $-CO_2-$, -N-(C_1-C_6 alkyl)-, -N(CO C_1-C_6 alkyl)-, -N(SO_2 C_1-C_6 alkyl)-, -N(CO aryl)-, or-N(SO_2 aryl); R_{20}, R_{21} and R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, heteroaryl or aryl; with the provision that two carboxy (-CO_2H) groups be on Z, such that the two carboxy groups be present on either R_{17} or R_{18}, or one carboxy may be present on each of R_{17} and R_{18}.

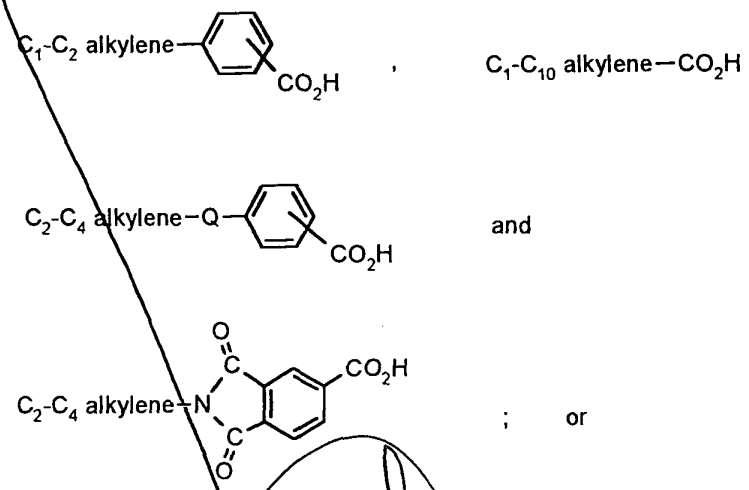
91. The diacidic compounds of claim 90 wherein R_{18} is



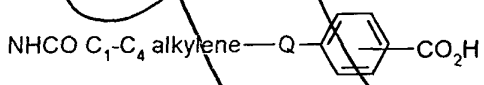
or R_{17} is



91. The diacidic compounds of claim 89 wherein R_{18} and R_{19} are independently selected from the group consisting of



R_{18} is selected from the group consisting of the groups listed immediately above and R_{17} is selected from the group consisting of



or NHCO C_1-C_4 alkylene CO_2H; wherein Q is selected from the group consisting of -S-, -O- or $-SO_2-$.

92. A method comprising reacting

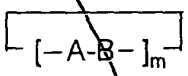
a) at least one diacidic monomer, comprising about 1 to 100 mole % of at least one light-absorbing monomer having a light absorption maximum between about 300 nm and about 1200 nm and 99-0 mole % of a non-light absorbing monomer which does not absorb significant light at wavelengths above 300 nm or has a light absorption maximum below 300 nm, with

b) an organic compound having the formula

wherein B is a divalent organic radical selected from the group consisting of C_2-C_{12} alkylene, C_3-C_8 cycloalkylene, C_1-C_4 alkylene- C_3- C_8-cycloalkylene- C_1-C_4 alkylene, C_1-C_4 alkylene-arylene- C_1-C_4 alkylene, C_2- C_4-alkylene-L-arylene-L- C_2-C_4 alkylene and C_2-C_4 alkylene-(L- C_2-C_4 alkylene)$_{1-4}$, wherein L is a linking group selected from the group consisting of -O-, -S-, $-SO_2-$, -NH-, -N(C_1-C_6 alkyl)-, -N(aryl)-, -N(SO_2 C_1-C_6 alkyl)-, -N(SO_2aryl)-, $-SO_2N(C_1-C_8$ alkyl)- and combinations thereof; X and X_1 are reactive groups and are independently selected from the group consisting of bromine, iodine and R-SO_2O; wherein R is selected from the group consisting of C_1-C_6 alkyl; C_1-C_8 alkyl substituted with chlorine, fluorine, C_1-C_6 alkoxy, aryl, aryloxy, arylthio or C_3-C_8 cycloalkyl; C_3-C_8 cycloalkyl or aryl,

wherein said reaction is carried out in a solvent in the presence of a base to form a light absorbing composition comprising a mixture of a polymer having the formula

and a cyclic compound having the general formula



wherein B is as defined above, n is at least 2, m is 1, 2, 3 or 4 and A comprises the residue of said diacidic monomer.

93. The process of claim 92 where said light-absorbing monomers have the formula

H-Y-H

wherein H represents an acidic hydrogen atom; Y is a divalent light-absorbing moiety selected from the group consisting of chromophoric classes of azo, disazo, triazo, bis-azo, methine, arylidene, polymethine, azo-methine, azamethine, anthraquinone, anthrapyridone (3H-dibenz[f,ij]isoquinoline-2,7-dione, nitroarylamines anthrapyridine (7H-dibenz[f,ij]isoquinoline-7-one, phthaloylphenothiazine (14H-naphth[2,3-a]phenothiazine-8,13-dione, benzanthrone (7H(de)anthracene-7-one), anthrapyrimidine (7H-benzo[e]perimidine-7-one), anthrapyrazole, anthraisothiazole, triphenodioxazine, thiaxanthene-9-one, fluorindine (5,12-dihydroquinoxaline [2,3-b]phenazine, quinophthalone, phthalocyanine, metal phthalocyanine, naphthalocyanine, metal naphthalocyanine, nickel dithiolenes, squarylium compounds, croconium compounds, coumarin (2H-1-benzopyran-2-one), coumarin imine (2H-1-benzopyran-2-imine), perinone, benzodifuran, phthaloylacridone, phthaloylphenoxazine (14H-naphtho[2,3-a]phenoxazine-8,13-done, phthaloylacridone (13H-naphtho[2,3-c] acridine-5,8,14-trione), anthraquinonethioxanthane (8H-naphtho[2,3-c]thioxanthene-5,8,13-trione, anthrapyridazone, pyrrolo[3,4-c]pyrrole, indigo, thioindigo, quinoline, xanthene, acridine, azine, cyanine, oxazine, 1,4 and 1,5-naphthoquinones, 2,5-diarylaminoterephthalic acids and esters, pyromellitic acid dimide, naphthalene-1,4,5,8-tetracarboxylic acid diimide, 3,4,9,10-perylenetetracarboxylic acid diimide, 3-aryl-2,5-dioxypyrroline, 3-aryl-5-dicyanomethylene-2-oxopyrroline, arylisoindoline, hydroxybenzophenone, benoztriazole, naphthotriazole, diminoisoindoline, naphthopyran (3H-naphtho[2,1-6]pyran-3-one and 3-imine, phthalimides, 2-arylbenzazoles, carbostyryls, 1,2-diarylethenes, 2,5-diarylthiophenes, 2,5-diaryl-1,3,4-oxadiazoles, triazines, 2,5-diarylfurans, 2,5-diaryl-1,3,4-thiadiazoles, thiophenes, 1,3-diphenyl-2-pyrazolines, 2-arylbenzofurans, 2,6-diphenylbenzofurans,

quinolines, quinoxalines, 3,4-diarylfuanones, distyrylarenes, benzanthrones, polyarenes and naphthalimides.

94. The method of claim 93 wherein said acidic functional groups are independently selected from the group consising of $-CO_2H$, -SH, -OH attached to an aromatic ring, $-CONHCO-$, $-SO_2-NH-CO-$, $-SO_2-NH-SO_2-$, 1(H)-1,2,4-triazol-3-yl-, imidazolyl, benzimidazolyl, pyrazolyl, $-SO_2H$ attached to aromatic ring, $-NHSO_2R_5$ and $-SO_2NHR_5$, wherein R_5 is selected from the group consisting of C_1-C_6 alkyl, C_3-C_8 cycloalkyl, aryl and C_1-C_6 alkyl substituted with at least one group selected from the group consisting of C_1-C_6 alkoxy, aryl, aryloxy, arylthio and C_3-C_8 cycloalkyl.

95. The method of claim 92 wherein said non light-absorbing monomers have the formula

$$H-Y_1-H$$

wherein H represents an acidic hydrogen atom; Y_1 is a divalent moiety selected from the group consisting of $-O_2C-R_1-CO_2-$ and $-O-R_2-O-$ and $-O_2C-R_3-O-$, wherein R_1 is selected from the group consisting of C_2-C_{12} alkylene, 1-4-cyclohexylene, arylene, arylene-O-arylene, arylene-SO_2-arylene, arylene-S-arylene, and C_1-C_4 alkylene-O- C_1-C_4 alkylene; wherein R_2 is selected from the group consisting of arylene, arylene-O-arylene, arylene-S-arylene, arylene-SO_2-arylene, phenylene-phenylene, and phenylene-$C(R_4)_2$-phenylene; wherein R_4 is selected from the group consisting of hydrogen and C_1-C_4 alkyl; wherein R_3 is selected from arylene.

96. A light absorbing composition comprising a mixture of a polymer having the formula

$$\left[A_1-B\right]_n$$

and a cyclic compound having the general formula

$$\left[-A\text{-}B-\right]_m$$

wherein A_1 comprises the residue of at least one diacidic monomer having a light absorption maximum between about 300 nm and about 1200 nm, and wherein B is a divalent organic radical selected from the group consisting of C_2-C_{12} alkylene, C_3-C_8 cycloalkylene, C_1-C_4 alkylene- C_3-C_8-cycloalkylene- C_1-C_4 alkylene, C_1-C_4 alkylene-arylene-C_1-C_4 alkylene, and C_2- C_4-alkylene-L-arylene-L- C_2-C_4 alkylene and C_2-C_4 alkylene-(L- C_2-C_4 alkylene)$_{1-4}$, wherein L is a linking group selected from-O-, -S-, -SO_2-, -NH-, -N(C_1-C_6 alkyl)-, -N(aryl)-, -N(SO_2 C_1-C_6 alkyl)-, -N(SO_2aryl)-, -SO_2N(C_1-C_6 alkyl)- and combinations thereof; wherein n is at least 2 and m is 1, 2, 3 or 4.

97. A composition comprising a thermoplastic polymer blended with at least one light absorbing linear polymeric composition of claim 96.

98. The composition of claim 97 wherein said thermoplastic polymer is selected from the group consisting of polyesters, polyolefins, polyamides, polyimides, polyvinyl chloride, polyurethanes, polycarbonates, cellulose esters, polyacrylates, polyvinylesters, polyester-amides, polystyrene, polyacrylonitrile-butadiene- styrene, polystyrene-acrylonitrile and mixtures and blends thereof.

99. The composition of claim 96 wherein A_1 comprises the residue of at least one diacidic monomer having the structure

H-Y-H

wherein H represents an acidic hydrogen atom and Y is a divalent light-absorbing moiety selected from the chromophoric classes consisting of azo, disazo, triazo, bis-azo, methine, arylidene, polymethine, azo-methine,

azamethine, anthraquinone, anthrapyridone (3H-dibenz[f,ij] isoquinoline-2,7-dione, nitroarylamines anthrapyridine (7H-dibenz[f,ij]isoquinoline-7-one, phthaloylphenothiazine (14H-naphth[2,3-a]phenothiazine-8,13-dione, benzanthrone (7H(de)anthracene-7-one), anthrapyrimidine (7H-benzo[e]perimidine-7-one), anthrapyrazole, anthraisothiazole, triphenodioxazine, thiaxanthene-9-one, fluorindine (5,12-dihydroquinoxaline [2,3-b]phenazine, quinophthalone, phthalocyanine, metal phthalocyanine, naphthalocyanine, metal naphthalocyanine, nickel dithiolenes, squarylium compounds, croconium compounds, coumarin (2H-1-benzopyran-2-one), coumarin imine (2H-1-benzopyran-2-imine), perinone, benzodifuran, phthaloylacridone, phthaloylphenoxazine (14H-naphtho[2,3-a]phenoxazine-8,13-done, phthaloylacridone (13H-naphtho[2,3-c] acridine-5,8,14-trione), anthraquinonethioxanthane (8H-naphtho[2,3-c]thioxanthene-5,8,13-trione, anthrapyridazone, pyrrolo[3,4-c]pyrrole, indigo, thioindigo, quinoline, xanthene, acridine, azine, cyanines, oxazine, 1,4 and 1,5-naphthoquinones, 2,5-diarylaminoterephthalic acids and esters, pyromellitic acid dimide, naphthalene-1,4,5,8-tetracarboxylic acid diimide, 3,4,9,10-perylenetetracarboxylic acid diimide, 3-aryl-2,5-dioxypyrroline, 3-aryl-5-dicyanomethylene-2-oxopyrroline, arylisoindoline, hydroxybenzophenone, benoztriazole, naphthotriazole, diminoisoindoline, naphthopyran (3H-naphtho[2,1-6]pyran-3-one and 3-imine, phthalimides, 2-arylbenzazoles, carbostyryls, 1,2-diarylethenes, 2,5-diarylthiophenes, 2,5-diaryl-1,3,4-oxadiazoles, triazines, 2,5-diarylfurans, 2,5-diaryl-1,3,4-thiadiazoles, thiophenes, 1,3-diphenyl-2-pyrazolines, 2-arylbenzofurans, 2,6-diphenylbenzofurans, quinolines, quinoxalines, 3,4-diarylfuanones, distyrylarenes, benzanthrones, polyarenes and naphthalimides.

100. The light absorbing composition of claim 99 wherein A_1 further comprises less than about 50% by weight of the total composition of a residue of at least one non-light absorbing monomer having the formula

$$H\text{-}Y_1\text{-}H$$

wherein Y_1 is a divalent moiety, selected from the group consisting of $-O_2C\text{-}R_1\text{-}CO_2-$ and $-O\text{-}R_2\text{-}O-$ and $-O_2C\text{-}R_3\text{-}O-$, wherein R_1 is selected from the group consisting of C_2-C_{12} alkylene, 1-4-cyclohexylene, arylene, arylene-O-arylene, arylene-SO_2-arylene, arylene-S-arylene, and C_1-C_4 alkylene-O- C_1-C_4 alkylene; wherein R_2 is selected from the group consisting of arylene, arylene-O-arylene, arylene-S-arylene, arylene-SO_2-arylene, phenylene-phenylene, and phenylene-$C(R_4)_2$-phenylene; wherein R_4 is selected from the group consisting of hydrogen and C_1-C_4 alkyl; wherein R_3 is arylene; wherein B is is a divalent organic radical selected from the group consisting of C_2-C_{12} alkylene, C_3-C_8 cycloalkylene, C_1-C_4 alkylene-C_3-C_8-cycloalkylene-C_1-C_4 alkylene, C_1-C_4 alkylene-arylene-C_1-C_4 alkylene, and C_2-C_4-alkylene-L-arylene-L-C_2-C_4 alkylene and C_2-C_4 alkylene-(L-C_2-C_4 alkylene)$_{1-4}$, wherein L is a linking group selected from-O-, -S-, $-SO_2-$, -NH-, -N(C_1-C_6 alkyl)-, -N(aryl)-, -N(SO_2 C_1-C_6 alkyl)-, -N(SO_2aryl)-, $-SO_2N(C_1$-C_6 alkyl)- and combinations thereof.

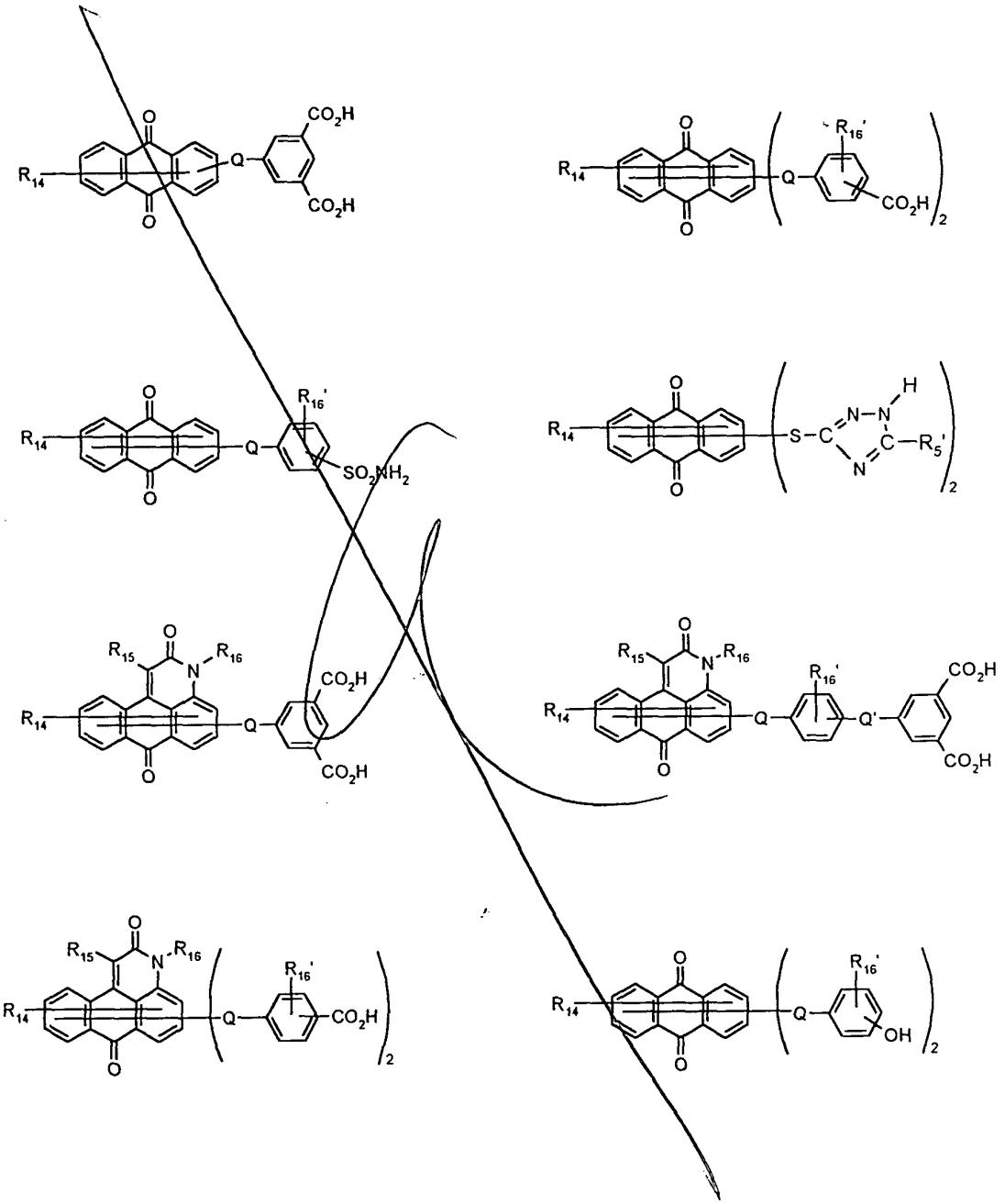
101. The light absorbing composition of Claim 100 wherein A_1 comprises the residue of at least one diacidic monomer having at least one acidic group other than carboxy and having a light absorption maximum between about 300 nm and about 1200 nm and wherein B is a divalent organic radical selected from C_2-C_{12} alkylene, C_3-C_8 cycloalkylene, C_1-C_4 alkylene- C_3- C_8-cycloalkylene- C_1-C_4 alkylene, C_1-C_4 alkylene-arylene- C_1-C_4 alkylene, and C_2-C_4-alkylene-L-arylene-L- C_2-C_4 alkylene and C_2-C_4 alkylene-(L-C_2-C_4 alkylene)$_{1-4}$, wherein L is a linking group selected from-O-, -S-, $-SO_2-$, -NH-, -N(C_1-C_6 alkyl)-, -N(aryl-, -

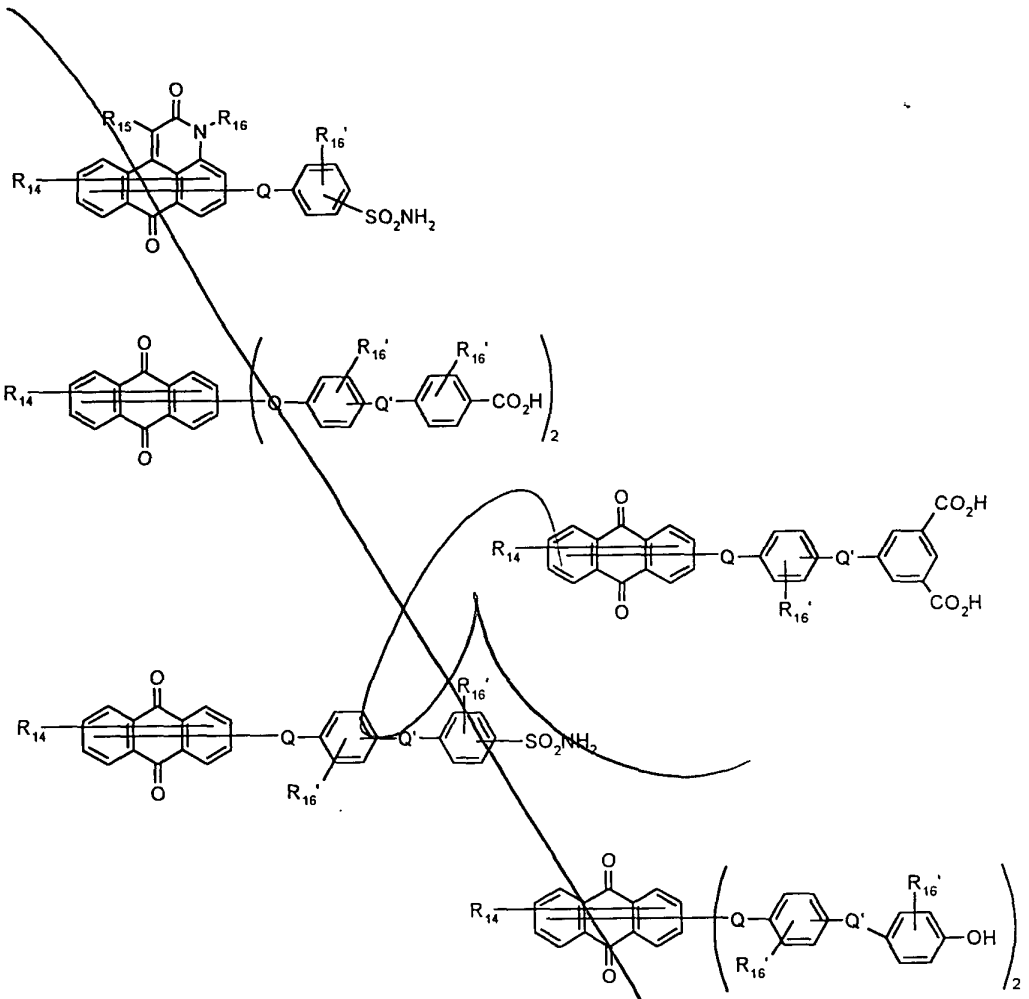
$N(SO_2\ C_1\text{-}C_6$ alkyl)-, -(SO_2aryl)-, $-SO_2N(C_1\text{-}C_6$ alkyl)- and combinations thereof; wherein n is at least 2.

102. The composition of claim 99 wherein said light absorbing monomer comprises two acidic groups independently selected from the group consisting of $-CO_2H$, SH, hydroxy attached to an aromatic ring, -CONHCO-(imide), $-SO_2NHCO-$, $-SO_2NHSO_2-$, 1(H)-1,2,4-triazolyl-3-yl-, imidazolyl, benzimidazolyl, pyrazolyl, $-SO_2H$ attached to an aromatic ring, $-NHSO_2R_5$ and $-SO_2NHR_5$, wherein R_5 is selected from the group consisting of $C_1\text{-}C_6$ alkyl; $C_1\text{-}C_6$ alkyl substituted with at least one group selected from $C_1\text{-}C_6$ alkoxy, aryl, aryloxy, arylthio and $C_3\text{-}C_8$ cycloalkyl; $C_3\text{-}C_8$ cycloalkyl; aryl.

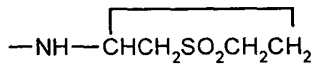
103. The composition of claim 100 wherein said light absorbing monomer comprises two carboxy groups as acidic functional groups.

104. The composition of claim 100 wherein the light absorbing portion of A comprises the residue of at least one diacidic light absorbing monomer selected from the group consisting of the anthraquinone and anthrapyridone colorants having the structures:





wherein R_{14} is selected from the group consisting of hydrogen and 1-4 groups selected from amino, C_1-C_{10} alkylamino, C_3-C_8 alkenylamino, C_3-C_8 alkynylamino, C_3-C_8 cycloalkylamino, arylamino, halogen, C_1-C_6 alkoxy, C_1-C_6 alkylthio, aryl, aroyl, C_1-C_6 alkanoyl, C_1-C_6 alkanoyloxy, NHCO C_1-C_6 alkyl, NHCOaryl, $NHCO_2$ C_1-C_6 alkyl, $NHSO_2$ C_1-C_6 alkyl, $NHSO_2$ aryl, C_1-C_6 alkoxycarbonyl, aryloxy, arylthio, heteroarylthio, cyano, nitro, trifluoromethyl, thiocyano, SO_2 C_1-C_6 alkyl, SO_2 aryl, $-SO_2NH$ C_1-C_6 alkyl, $-SO_2N(C_1$-C_6 alkyl)$_2$, $-SO_2N(C_1$-C_6 alkyl) aryl, CONH C_1-C_6 alkyl, $CON(C_1$-C_6 alkyl)$_2$, $CON(C_1$-C_6 alkyl) aryl, C_1-C_6 alkyl, furfurylamino, tetrahydrofurfurylamino, 4-(hydroxymethyl) cyclohexanemethylamino,



or hydroxy; Q and Q' are independently selected from the group consisting of -O-, $-N(COR_{10})-$, $-N(SO_2R_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $-CON(R_{10})-$, $SO_2N(R_{10})-$, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl, or C_1-C_{10} alkyl; R_{15} is selected from the group consisting of hydrogen, cyano, C_1-C_6 alkylamino, C_1-C_6 alkoxy, halogen, arylthio, aryl, heteroaryl, heteroarylthio, C_1-C_6 alkoxycarbonyl, aroyl or arylsulfonyl; R_{16} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl and aryl; R_{16}' is selected from the group consisting of hydrogen, C_1-C_6 alkyl, halogen and C_1-C_6 alkoxy; wherein each C_1-C_6 alkyl group and C_1-C_6 alkyl group which is a portion of another group may contain at least one substituent selected from the group consisting of hydroxy, cyano, chlorine, fluorine, C_1-C_6 alkoxy, C_3-C_8 cycloalkoxy, C_1-C_6 alkylcyclohexyl, hydroxmethyl cyclohexyl, aryl and heteroaryl; with the provision that two acidic groups containing one acidic proton each or one acidic group containing two acidic hydrogens be present in the diacidic compounds.

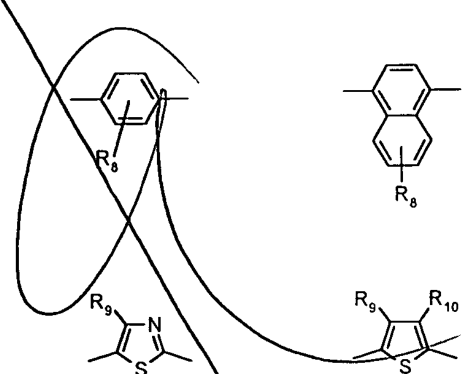
105. The composition of claim 100 wherein the light absorbing portion of A comprises the residue of at least one light absorbing monomer selected from the group consisting of azo, disazo, bis-azo and azomethine and having respectively the structures:

$$R_6-N=N-Z,\ R_6-N=N-R_7-N=N-Z,\ R_6-N=N-Y_1-N=N-R_6 \text{ and } D=HC-N=N-Z$$

wherein R_6 is the residue of an aromatic or heteroaromatic amine which has been dizaotized and coupled with a coupling component H-Z and is derived from an amine

selected from the group consisting of aromatic and heteroaromatic amine classes selected from the group consisting of aniline, 1-aminonaphthalene, 1-aminoanthraquinone, 4-aminoazobenzene, 2-aminothiazole, 2-aminobenzothiazole, 3-amino-2,1-benzisothiazole, 2-aminothieno[2,3-d]thiazole, 5-aminoisothiazole, 5-aminopyrazole, 4-aminopyrazoloisothiazole, 2-amino-1,3,4-thiadiazole, 5-amino-1,2,4-thiadiazole, 5-amino-1,2,3-triazole, 2-amino-1,3,4-triazole, 2(5) aminoimidazole, 3-aminopyridine, 2(3) aminothiophene, 2(3) aminobenzo[b]thiophene, 2-aminothieno[3,2-b]thiophene, 3-aminothieno[2,3-c]isothiazole, 3-amino-7-benz-2,1-isothiazole, 3-aminobenzothienoisothiazole, 3-aminoisothiazole[3,4-d]pyrimidine, 5-amino-1,2,3-triazole, 3(4) aminophthalimide and 5(6) amino-1,2-benzisothiazolon-1,1-dioxide with said aromatic and heteroaromatic ring systems being unsubstituted or substituted with one or more groups selected from C_1-C_{10} alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, carboxy, halogen, C_1-C_6 alkoxycarbonyl, formyl, C_1-C_6 alkanoyl, C_1-C_6 alkanoyloxy, dicyanovinyl, C_3-C_8-cycloalkanoyl, thiocyano, trifluroacetyl, cyano, carbamoyl, -CONH-C_1-C_6-alkyl, CONHaryl, CON(C_1-C_6 alkyl)$_2$, sulfamoyl, SO_2NH C_1-C_6 alkyl, SO_2N(C_1-C_6 alkyl)$_2$, SO_2NHaryl, SO_2NH C_3-C_8 cycloalkyl, CONH C_3-C_8 cycloalkyl, aryl, aroyl, -NHSO_2 C_1-C_6 alkyl, -N(C_1-C_6 alkyl)SO_2 C_1-C_6 alkyl, -NHSO_2 aryl, NHCO C_1-C_6 alkyl, NHCO C_3-C_8 cycloalkyl, NHCOaryl, NHCO_2 C_1-C_6 alkyl, NHCONH C_1-C_6 alkyl, NHCONHaryl, N(C_1-C_6 alkyl)aryl, arylazo, heteroaryl, aryloxy, arylthio, C_3-C_8 cycloalkoxy, heteroarylazo, heteroarylthio, arylsulfonyl, tricyanovinyl, aryloxysulfonyl, C_1-C_6 alkylsulfonyl, trifluoromethyl, fluorosulfonyl, trifluoromethylsulfonyl, thiocyano, hydroxy, nitro or CH=D, wherein D is the residue of an active methylene compound selected from the group consisting of malononitrile, α-cyanoacetic acid esters, malonic acid esters, α-cyanacetic acid amides, α-C_1-C_6

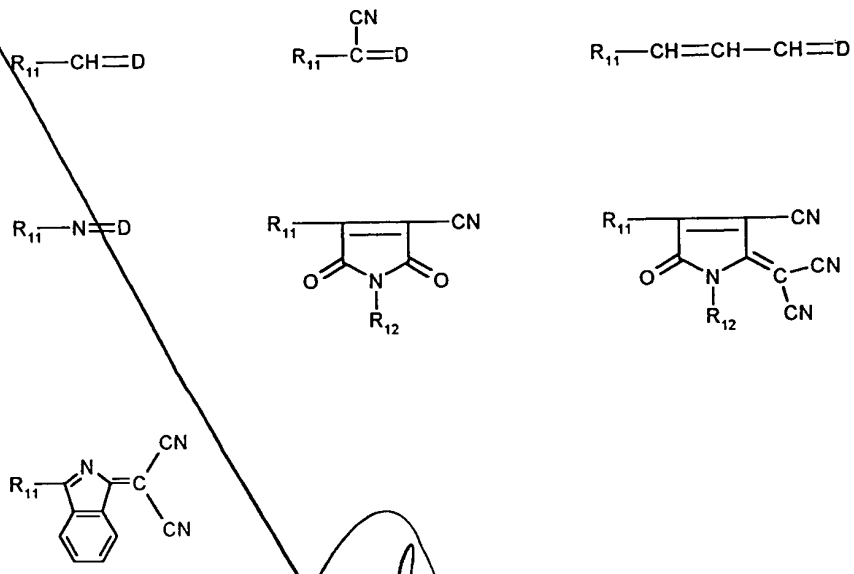
alkylsulfonylacetonitriles, α-arylsulfonylacetonitriles, α-C_1-C_6 alkanoylacetonitriles, α-aroylacetonitriles, α-heteroarylacetonitriles, bis(heteroaryl)methanes, 1,3-indanediones, 2-furanones, benzo-2-furanones, naphtho-2-furanones, 2-indolones, 3-cyano-1,6-dihydro-4-methyl-2,6-dioxy (2H)-pyridines, benzo (b) thieno-3-ylidene propane dinitrile-5,5-dioxides, 1,3-bis(dicyanomethylene) indanes, barbituric acid, 5-pyrazolones, dimedone, 3-oxo-2,3-dihydro-1-benzothiophene-1,1-dioxides or aryl-$C(CH_3)C=C(CN)_2$; wherein R_7 is a divalent aromatic or heteroaromatic radical selected from the group consisting of 1,4-phenylene, naphthalene-1,4-diyl, thiazol-2,5-diyl and thiophene-2,5-diyl:



wherein R_8 is selected from the group consisting of hydrogen or 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, cyano, halogen, -NHCO C_1-C_6 alkyl, -$NHCO_2$ C_1-C_6 alkyl, -NHCO aryl, -NHCONH aryl or NHCONH C_1-C_6 alkyl; R_9 is selected from the group consisting of hydrogen, C_1-C_6 alkyl, halogen, aryl, heteroaryl; R_{10} is selected from the group consisting of hydrogen, C_1-C_6 alkoxycarbonyl, cyano, carbamoyl, aryl, arylsulfonyl, aroyl, -CONH C_1-C_6 alkyl, or C_1-C_6 alkylsulfonyl; wherein Z is the residue of a coupling compound selected from the group consisting of electron rich compound classes of anilines, 1-aminonaphthalenes, 1,2-dihydroquinolines, 1,2,3,4-tetrahydroquinolines, benzomorpholines (3,4-dihydro-2H-1,4-benzoxazine),

pyrazolones, pyrazoles, 3-cyano-6-hydroxy-2-pyridones, 2,3-dihydroindoles, indoles, 4-hydroxycoumarins, 4-hydroxy-2-quinolones, imidazo[2,1-b]thiazoles, julolidines (2,3,6,7-tetrahydro-1H,5H-benzo[ij]quinolizines), 1-oxajulolidines, 1,2,5,6-tetrahydro-4H-pyrrolo[3,2,1-ij]quinolines, 2,6-diamino-3 cyanopyridines, 2-aminothiazoles, 2-aminothiophenes, 5,5-dimethyl-1,3-cyclohexanedione (dimedone), phenols, naphthols, 2,4-pentanediones or acetoacetarylides; wherein Y_1 is the residue of a bis coupling component selected from the group consisting of anilines, 1,2-dihydroquinolines, 1,2,3,4-tetrahydroquinolines, benzomorpholines (3,4-dihydro- 2H-1,4-benzoxazines), 3-cyano-6-hydroxy-2-pyridones, 2,6-diaminopyridines, 2,3-dihydroindoles, naphthylamines, 2-aminothiazoles, or a combination of these; with the provision that two acidic functional groups containing one acidic hydrogen each or a functional group containing two acidic hydrogen are present in the diacidic light absorbing monomer.

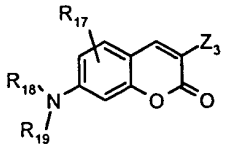
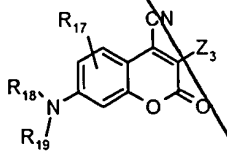
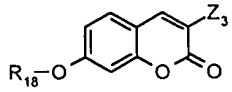
106. The composition of claim 100 wherein the light absorbing portion of A comprises the residue of at least one light absorbing monomer selected from the group consisting of methine, arylidene, polmethine, azamethine, 3-aryl-2,5-dioxypyrroline, 3-aryl-5-dicyanomethylene-2-oxypyrroline and arylisoindoline and having respectively the structures:



wherein R_{11} is the residue of an electron rich aromatic compound selected from the group consisting of an aniline, 1-naphthylamine, 1,2-dihydroquinoline, 1,2,3,4-tetrahydroquinoline, 1,3,3-trimethyl- 2-methyleneindole, 1,3-dihydro-2-methylene- 1,1,3-trimethyl-2H-benz[e]indole, imidazo [2,1-b] thiazole, benzomorpholine (3,4-dihydro-2H-1,4,benzoxazine), 2,3-dihydroindole, indole, 2-aminothiazole, julolidine (2,3,6,7-tetrahydro-1H, 5H- benz [ij] quinolizine, 1-oxajulolidine, 4H-pyrrolo [3,2,1-ij]-quinoline, phenol, naphthol, thiophenol, pyrrole, pyrazole, furan, thiophene, carbazole, phenothiazine or phenoxazine compound; R_{12} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 alkenyl, C_3-C_8-alkynyl, C_3-C_8 cycloalkyl, aryl, $(CH_2CH_2O)_{1-3}$ R_{13} and C_1-C_4 alkylene- C_3-C_8 cycloalkylene, wherein the C_1-C_6 alkyl groups may be substituted by at least one group selected from the group consisting of carboxy, C_1-C_6 carbalkoxy, C_1-C_6 alkanoyloxy, cyano, hydroxy, chlorine, fluorine, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl or aryl; R_{13} is selected from the group consisting of hydrogen, C_1-C_6 alkoxy or C_1-C_6 alkanoyloxy; wherein D is the residue of an active

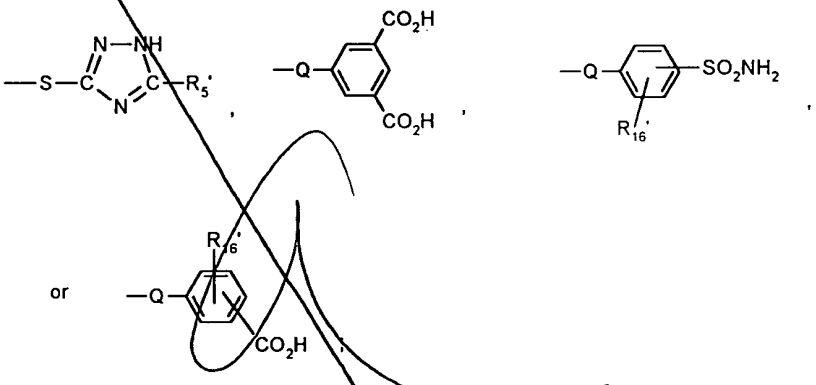
methylene compound selected from the group consisting of malononitrile, α-cyanoacetic acid esters, malonic acid esters, α-cyanacetic acid amides, α-C_1-C_6 alkylsulfonylacetonitriles, α-arylsulfonylacetonitriles, α-C_1-C_6 alkanoylacetonitriles, α-aroylacetonitriles, α-heteroarylacetonitriles, bis(heteroaryl)methanes, 1,3-indanediones, 2-furanones, benzo-2-furanones, naphtho-2-furanones, 2-indolones, 3-cyano-1,6-dihydro-4-methyl-2,6-dioxy (2H)-pyridines, benzo (b) thieno-3-ylidene propane dinitrile-5,5-dioxides, 1,3-bis(dicyanomethylene) indanes, barbituric acid, 5-pyrazolones, dimedone, 3-oxo-2,3-dihydro-1-benzothiophene-1,1-dioxides or aryl-$C(CH_3)C=C(CN)_2$, with the proviso that two acidic functional groups containing one acidic hydrogen each, or a functional group containing two acidic hydrogens are present.

107. The composition of claim 100 wherein the light absorbing portion of A_2 comprises a residue of at least one diacidic coumarin compounds selected from the group consisting of the structures

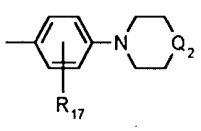




wherein Z_3 is selected from the group consisting of cyano, C_1-C_6 alkoxycarbonyl, C_1-C_6 alkylsulfonyl, arylsulfonyl, aryl, heteroaryl, formyl, aroyl, C_1-C_6 alkanoyl or-CH=D, wherein R_{17} is selected from the group consisting of hydrogen, 1-2 groups selected from C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, -O C_2-C_6 alkylene-OH, O C_2-C_6 alkylene- C_1-C_6 alkanoyloxy, C_1-C_6 alkylene-OH, C_1-C_6 alkylene- C_1-C_6 alkanoyloxy, halogen, carboxy, C_1-C_6 alkoxycarbonyl, trifluoromethyl, $NHCOR_{24}$, $NHCO_2R_{24}$,

$NHCON(R_{24})R_{25}$, and $NHSO_2R_{25}$, wherein R_{24} is selected from the group consisting of hydrogen, C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl, R_{25} is selected from the group consisting of C_1-C_{10} alkyl, C_3-C_8 cycloalkyl or aryl wherein each C_1-C_{10} alkyl group in R_{24} and R_{25} may be further substituted with one or more groups selected from the group consisting of C_3-C_8 cycloalkyl, aryl, aryloxy, arylthio, CO_2H, CO_2 C_1-C_6 alkyl, cyano, hydroxy, succinimido, C_1-C_6 alkoxy,



wherein R_5' is selected from the group consisting of hydrogen, C_1-C_6 alkyl or aryl; R_{16}' is selected from hydrogen or one or two groups selected from C_1-C_6 alkyl, halogen, and C_1-C_6 alkoxy; Q is selected from the group consisting of -O-, $-N(COR_{10})-$, $-N(R_{10})-$, -S-, $-SO_2-$, $-CO_2-$, $CON(R_{10})$, $SO_2(R_{10})-$, wherein R_{10} is selected from the group consisting of hydrogen, aryl, C_3-C_8 cycloalkyl or C_1-C_{10} alkyl; R_{18} and R_{19} are independently selected from the group consisting of hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, C_3-C_8 cycloalkyl, C_3-C_8 alkenyl, C_3-C_8 alkynyl and aryl or R_{18} and R_{19} may be combined with another element to which they are attached to form a radical Z having the formula



wherein Q_2 is selected from the group consisting of a covalent bond, -O-, -S-, $-SO_2-$, -CO-, $-CO_2-$, $-N-(C_1-C_6$ alkyl)-, $-N(CO\ C_1-C_6$ alkyl)-, $-N(SO_2\ C_1-C_6$ alkyl)-, -N(CO aryl)-, or$-N(SO_2$ aryl); R_{20}, R_{21} and R_{22} are independently selected from the group consisting of or C_1-C_6 alkyl; R_{23} is selected from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, heteroaryl or aryl; wherein D is the residue of an active methylene compound selected from the group consisting of malononitrile, α-cyanoacetic acid esters, malonic acid esters, α-cyanacetic acid amides, α-C_1-C_6 alkylsulfonylacetonitriles, α-arylsulfonylacetonitriles, α-C_1-C_6 alkanoylacetonitriles, α-aroylacetonitriles, α-heteroarylacetonitriles, bis(heteroaryl)methanes, 1,3-indanediones, 2-furanones, benzo-2-furanones, naphtho-2-furanones, 2-indolones, 3-cyano-1,6-dihydro-4-methyl-2,6-dioxy (2H)-pyridines, benzo (b) thieno-3-ylidene propane dinitrile-5,5-dioxides, 1,3-bis(dicyanomethylene) indanes, barbituric acid, 5-pyrazolones, dimedone, 3-oxo-2,3-dihydro-1-benzothiophene-1,1-dioxides or aryl-$C(CH_3)C=C(CN)_2$, with the proviso that two acidic functional groups containing one acidic hydrogen each, or a functional group containing two acidic hydrogens are present.

Add C2